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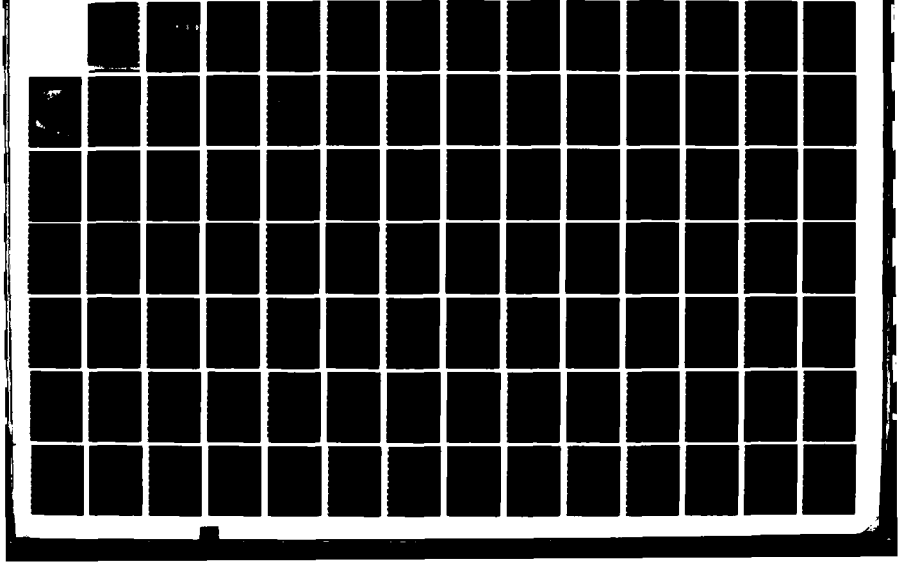

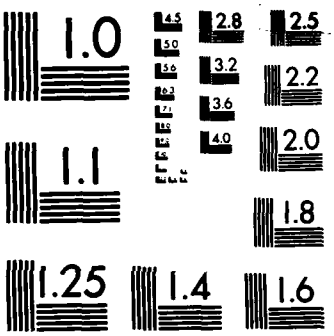

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NAVAL POSTGRADUATE SCHOOL

Monterey, California

MIZLANT 85 DATA REPORT
RESULTS OF AN OCEANOGRAPHIC CRUISE
TO THE GREENLAND SEA

September 1985

Robert H. Bourke, Robert G. Paquette
and Alan M. Weigel

September 1986

Interim Report for Period 1 June 1985-30 September 1986

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			Marginal Ice Zone; Yermek Plateau.

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

This report presents plots of property profiles for each of the 156 oceanographic stations occupied by the U.S. Coast Guard icebreaker NORTHWIND in the Fram Strait area of the Greenland Sea during September 1985. A Neil Brown Mark III CTD was used to obtain temperature and salinity profiles to the sea floor in shallow water and to at least 600m in deeper water. In addition to temperature and salinity profiles, plots of sound speed and density (sigma-t) are shown. Keywords: Oceanographic data;

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A

MIZLANT 85 DATA REPORT
RESULTS OF AN OCEANOGRAPHIC CRUISE TO THE GREENLAND SEA SEPTEMBER 1985

by

Robert H. Bourke, Robert G. Paquette, and
Alan M. Weigel

I. INTRODUCTION

This report describes the cruise of the Coast Guard ice breaker NORTHWIND (WAGB-282) to the Fram Strait area of the Greenland Sea during September 1985. This cruise has been designated Arctic East 1985 (AE85), but for continuity with past cruises is also termed MIZLANT 85. The cruise had several objectives: (a) determine the northward extent of the warm saline, westward branch of the West Spitsbergen Current (WSC), (b) determine the temperature and salinity distribution across Fram Strait in at least two locations (one north of OB Bank, one south of OB Bank), (c) assess the circulation over the Molloy Deep, (d) study the dynamic characteristics of the East Greenland Polar Front (EGPF), between 79^{o} and 81^{o}N, (e) determine the biological properties of the upper portion of the water column (the details of these studies are reported elsewhere), and (f) study the exchange of water between the deep troughs on and off the shelf.

The NORTHWIND track covered approximately 3808 km (2052 miles) during which 158 CTD stations were made in Fram Strait and in the area north of Svalbard. All but two of the CTD stations were conducted from the ship; the other two were made from ice floes using the ship's heliocopters. Prior to departure from Iceland the ship experienced a causualty to the port main motor making the port shaft unusable for the entire cruise. This fact along with heavy ice conditions north of Fram Strait prevented the completion of several planned transects, especially those across the top of Fram Strait to capture the characteristics of the westward flow of WSC water.

II. GENERAL DISCUSSION

The scientific party boarded NORTHWIND between 27 and 30 August 1985 in Reykiavik and Akurery, Iceland. The members of the physical oceanography scientific party and their affiliations are:

Dr. John L. Newton, Polar Research Laboratory, Chief Scientist
Dr. Robert H. Bourke, Naval Postgraduate School
Mr. Kim O. McCoy, Private Consultant to NPS

LT Alan M. Weigel, USN, Student NPS

Also on board were three scientists from the Naval Ocean Systems Center, San Diego who conducted the biological portion of the cruise.

The cruise track and location of CTD stations are indicated in Figure 1. A listing of the location of all CTD stations and ancillary climatological data at each station is shown in Appendix A. The atmospheric pressure, air temperature, and wind speed and direction measured every six hours are shown in Figures 2, 3, and 4. Throughout the cruise the air temperature generally remained at or just below the freezing point. From 15 September to 22 September, a storm passed through the area keeping air temperatures generally below -5^{o} C. This coincided with a decrease in atmospheric pressure which remained below 1010 mb from 15 through 23 September. The wind speed consistently remained above 15 knots except for brief periods of light and variable winds. Winds were predominantly from the north except for the four day period 10-13 September.

A detailed bathymetry of Fram Strait is shown in Figure 5. The bottom contours west of the prime meridian were derived from Perry et al. (1985) while those west of it were taken from Tunnicliffe (1985). The bottom contours were then further refined by incorporating the depths measured at each CTD station during AE85.

III. INSTRUMENTATION

The primary oceanographic instrument was the Neil Brown Instrument Systems (NBIS) Mark III CTD. Data were acquired, stored and displayed using a Hewlett-Packard 9835B computer and a 9872A x-y flat-bed plotter. As in the past, a wire cage was constructed around the base of the CTD to protect the sensors from ice damage. No apparant deviation in sensor accuracy has been noted using this technique.

Prior to lowering the instrument it was flushed by lowering and hoisting over a depth range of 50 m for several minutes to minimize temperature errors caused by stored heat in the body of the instrument. Standardization of the instrument was by means of reversing bottle clamped to the line above the instrument. The resulting samples were analyzed by a portable induction salinometer referenced to standard water. The average differences between the instuments and the standards were approximately 0.01^{o}C in temperature and 0.01 ppt in salinity, not notably greater than the probable error in the thermometer and the deck salinometer measurements.

The calibrated 3200 dbar pressure sensor installed at NPS failed early in the cruise, at Station 18, and was replaced with the 1600 dbar sensor. This reduced

depth capability had no impact on the cruise as no casts were conducted below 1200 m.

The temperature and conductivity sensors of the NBIS CTD were calibrated at NPS prior to the cruise. The mean temperature difference between the standard and the CTD, based on 20 determinations, was 0.006°C, with a standard deviation of 0.001°C. The mean conductivity difference, based on 10 samples at each of 5 salinities, was -0.04 $ohm^{-1}cm^{-1}$, with a standard deviation of 0.006 $ohm^{-1}cm^{-1}$. A post-cruise calibration determined that no drift had occurred in temperature sensor accuracy. The mean temperature difference, based on 20 determinations, was again 0.006°C, with a standard deviation of 0.001°C. The post cruise calibration of the conductivity sensor, however, did show some drift. The mean conductivity difference between the standard and the CTD, based on 10 determinations at each of 4 salinities, was -0.01 $ohm^{-1}cm^{-1}$, with a standard deviation of 0.005 $ohm^{-1}cm^{-1}$. (At the range of temperatures found during the cruise, a change in conductivity of 0.01 $ohm^{-1}cm^{-1}$ results in a 0.015 ppt change in salinity.) No correction was applied to the raw data, however, because the post cruise calibration was not performed until 6 months after completion of the cruise.

Two lightweight, portable CTD's (Applied Micro Systems, Inc) were used as back-up instruments as well as deployed from the ship's helicopters. A battery-operated, motorized winch was used with this CTD system. Two lowerings were made using the lightweight CTD deployed from a helicopter. Several lowerings were made with the lightweight CTD strapped to the NBIS CTD for intercomparison; the performance of the two systems is quite similar.

At three stations during the cruise the water motion at 40 m and 100 m depth was measured with a Hydro Products current meter. These measurements were made to determine the vertical current shear of the upper layer of the water column and also to adjust the level of no motion of the baroclinically-derived currents. The current meter consisted of a Savonius rotor and a magnetic compass vane system mounted approximately one meter above the NBIS CTD. The analog signal from the current meter system was digitized using a Hewlett-Packard 3412A Data Aquisition System. A HP-71A computer was used to compute and store 10 min averages of current speed and direction. During these current measurement periods, which lasted from 3 to 10 hours, the ship's drift was monitored based on fixes obtained by satellite navigation. The absolute current was determined by vector addition of the ship's motion.

The two embarked helicopters were used extensively in an ice reconnaissance role and, in two places, to extend the sampling area with the lightweight CTD. Forty sorties for ice reconnaissance were flown for a total of 80 flight hours.

IV. ANALYSIS

The West Spitsbergen Current (WSC) is a warm, saline, northward flowing extension of the Norwegian Current System. As seen in Figure 6, a transect across Fram Strait at 78°N, core temperatures for the WSC were in excess of 6°C. This warm core occupies the upper 50 m of the water column and tends to hug the shelf break as it flows north along the west coast of Svalbard. One branch of the current then heads northeast beyond 80°N to eventually enter the Arctic Basin. This can be seen in the transect northwest across the shelf break north of Svalbard (Figure 7). Here the core temperatures have cooled to slightly above 4°C. The second, westward turning branch appears to be partially controlled by the west shoulder of the Yermak Plateau. A longitudinal transect along 2°E shows that the maximum temperature of the westward flowing core lies just outside the ice edge, at station 100 in Figure 8. The absolute northward extent of the westward flowing arm could not be ascertained but probably does not extend much north of 81°N.

We were able to map the joining of this warm current with the cold waters exiting from the Arctic Ocean. The boundary of the exiting Arctic Waters appears to start near the Yermak Plateau continental shelf break and bends southwestward to the Greenland continental shelf break. This is shown in a transect at approximately 80° 30'N (Figure 9). A transition zone, rich in finestructure some 55 to 75 km wide, separates the Arctic water from the warm salty water of the WSC.

A four-day survey was conducted of a cold lens of Polar Water *detached from* the ice edge near 79° 30'N, 1°W. A transect through this lens (Figure 10) shows the east-west extent, but the north-south extent could not be precisely determined. Hence, it could not be determined that this cold lens actually was completely detached from the East Greenland Current.

V. ACKNOWLEDGEMENTS

We are grateful for the help provided by the officers and men, especially the marine science technicians, of the USCGC NORTHWIND. This work was supported by the Arctic Submarine Laboratory , Naval Ocean Systems Center, San Diego, Ca. under contract numbers N6600185WR00524 and N6600186WR00131.

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Tunnicliffe, M. D., An investigation of the waters of the East Greenland Current, Master's Thesis, Naval Postgraduate School, Monterey, Ca., 136 pp., 1985.

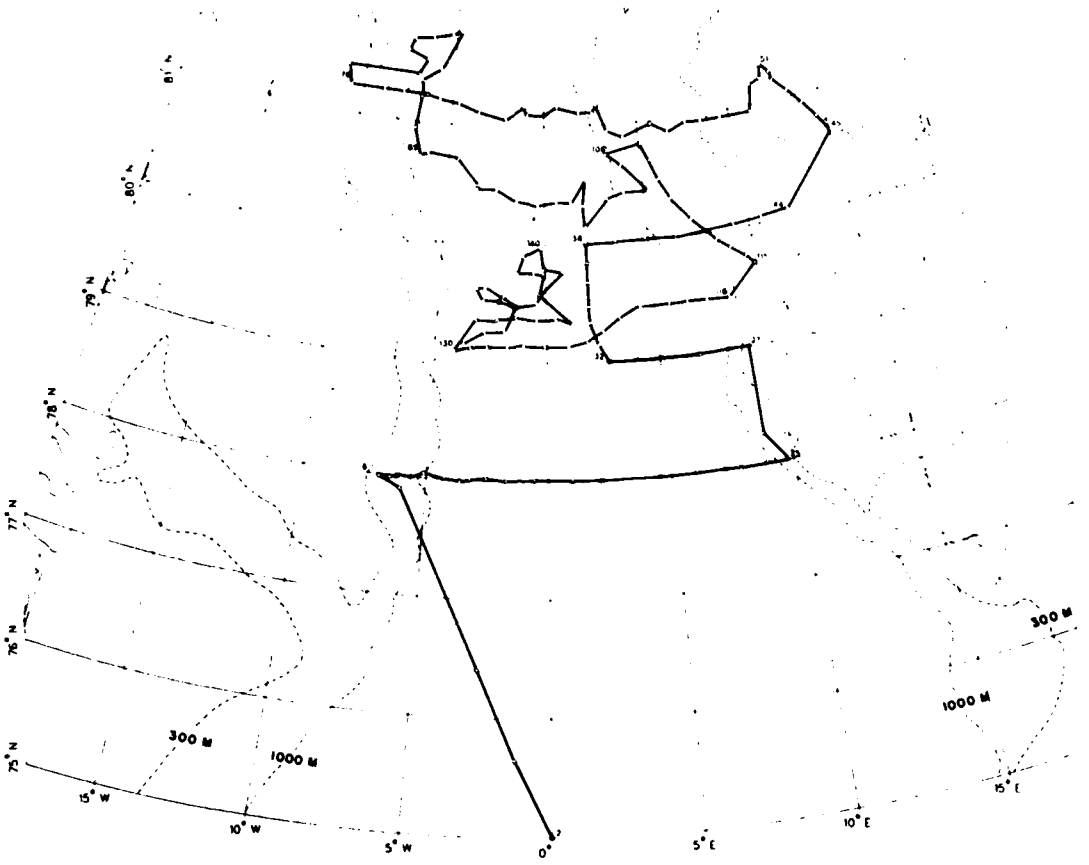

Figure 1. Cruise track and location of CTD stations during MIZLANT 85.

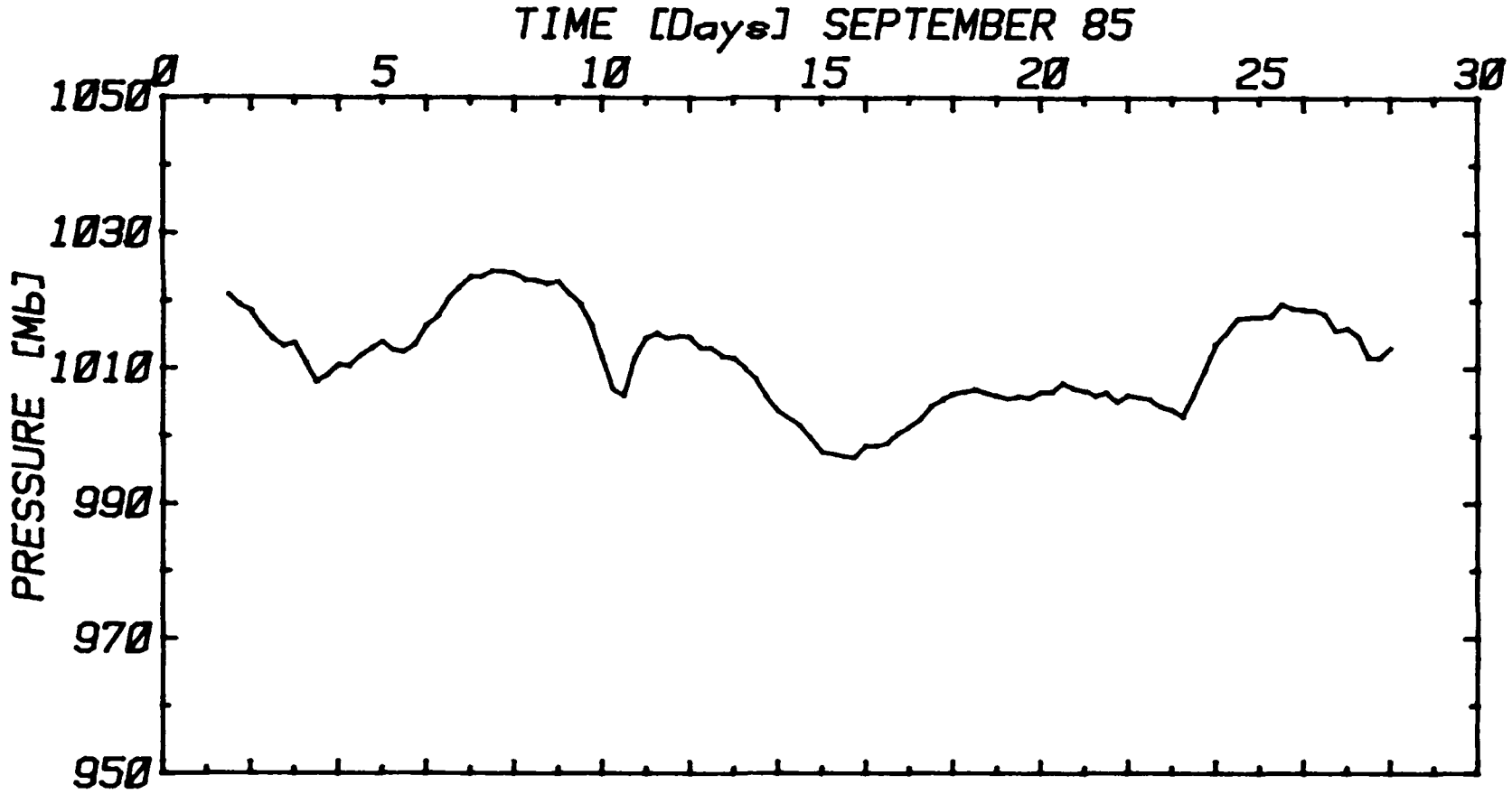

Figure 2. Atmospheric pressure (mbar) at 6-hourly intervals during MLANT 85.

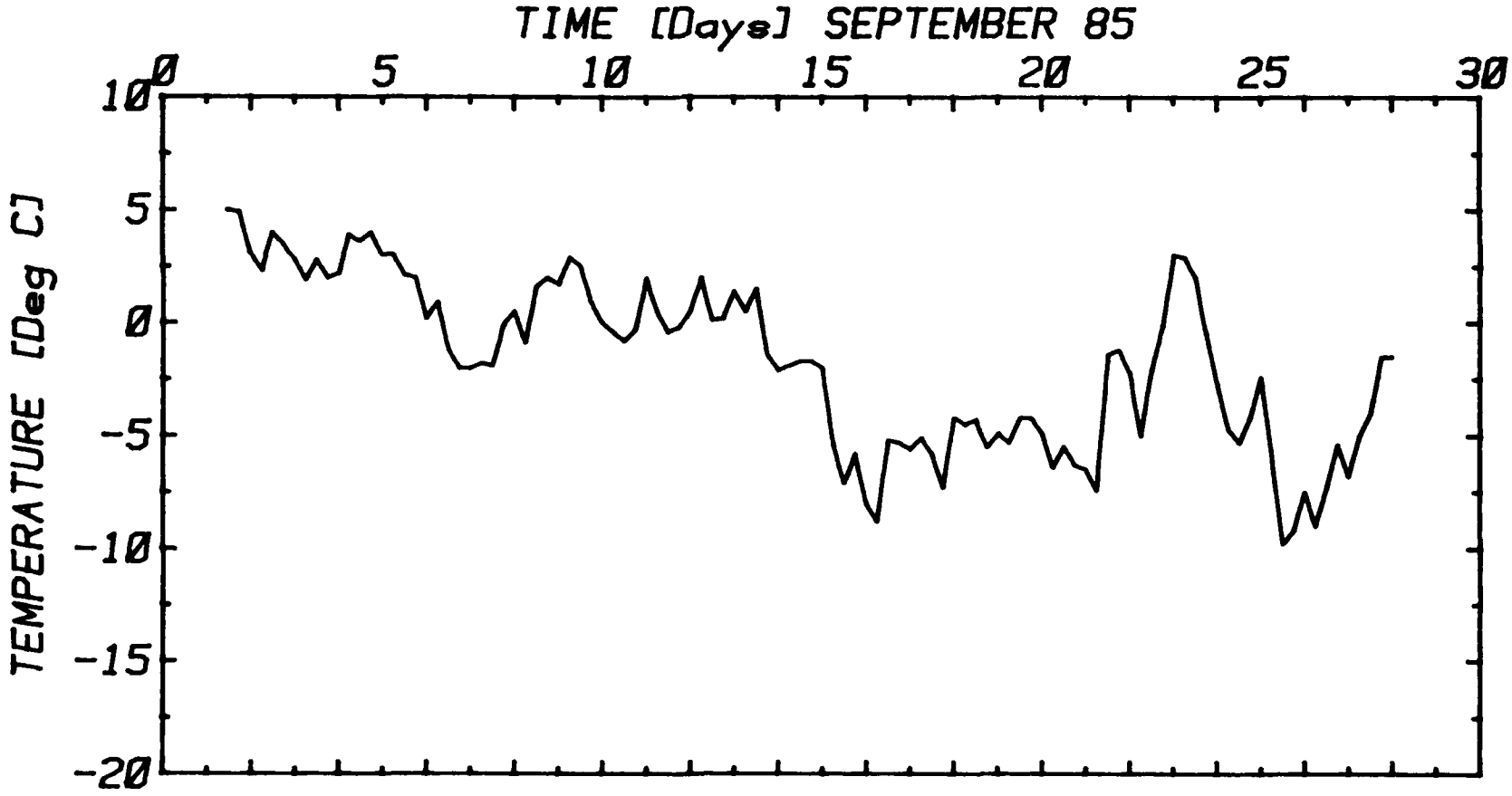

Figure 3. Air temperature (^{o}C) at 6-hourly intervals during MLANT 85.

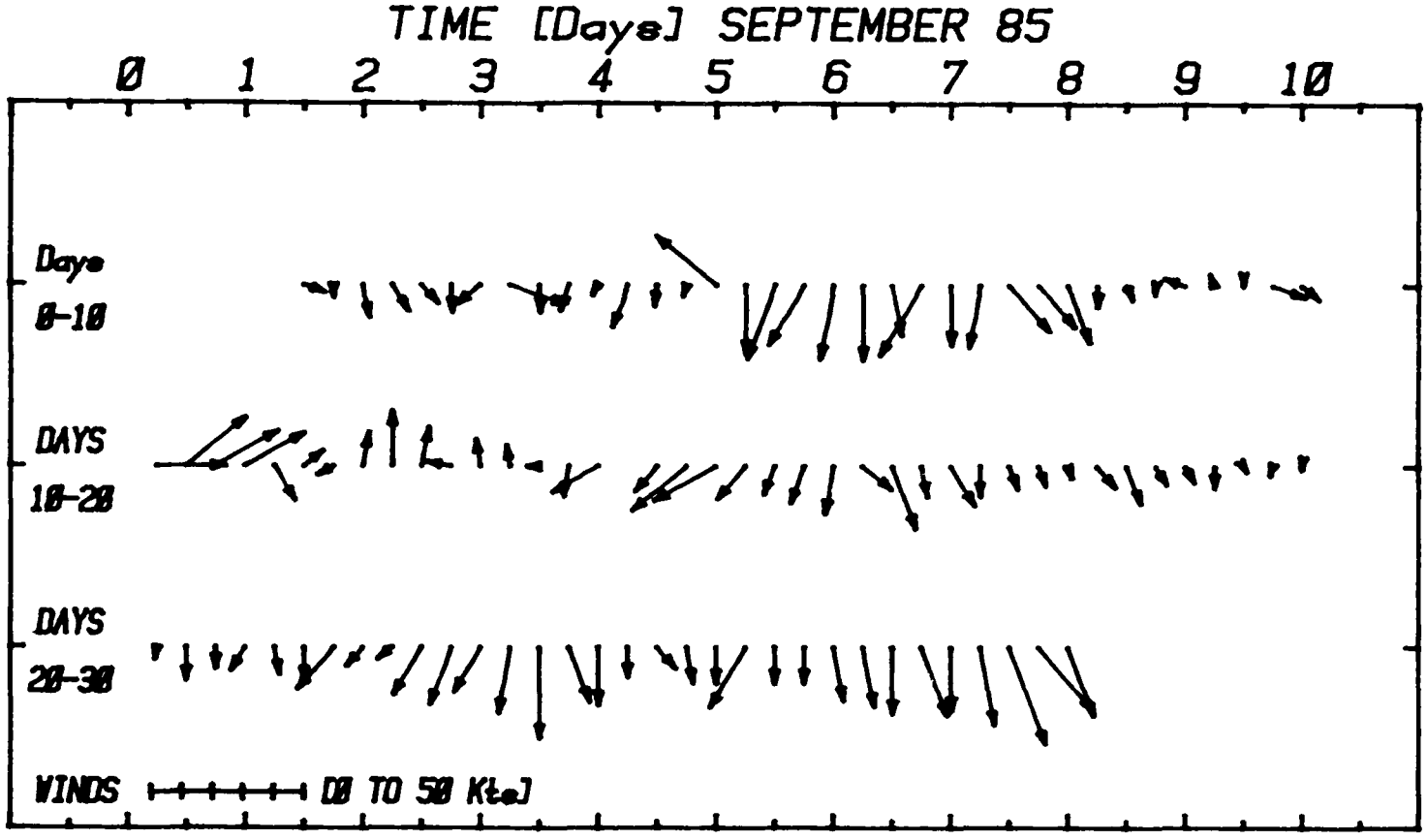

Figure 4. Wind speed (kts) and direction at 6-hourly intervals during MLANT 85.

Figure 5. Bathymetry (meters x 100) of the Fram Strait area based on data from Perry et al. (1985) and Tunnicliffe (1985).

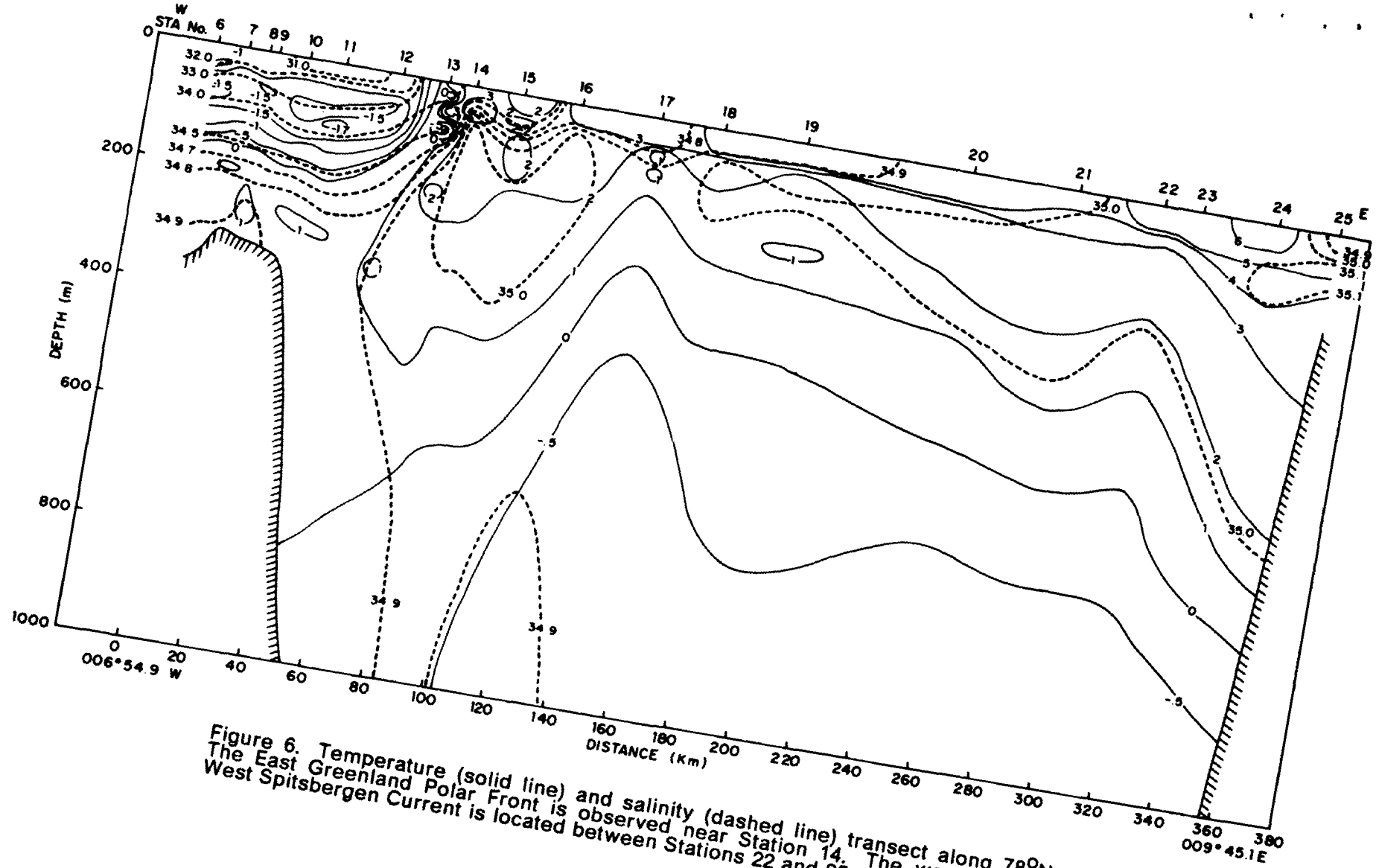

Figure 6. Temperature (solid line) and salinity (dashed line) transect along 78°N. The East Greenland Polar Front is observed near Station 14. The warm ($>6°C$) West Spitsbergen Current is located between Stations 22 and 25.

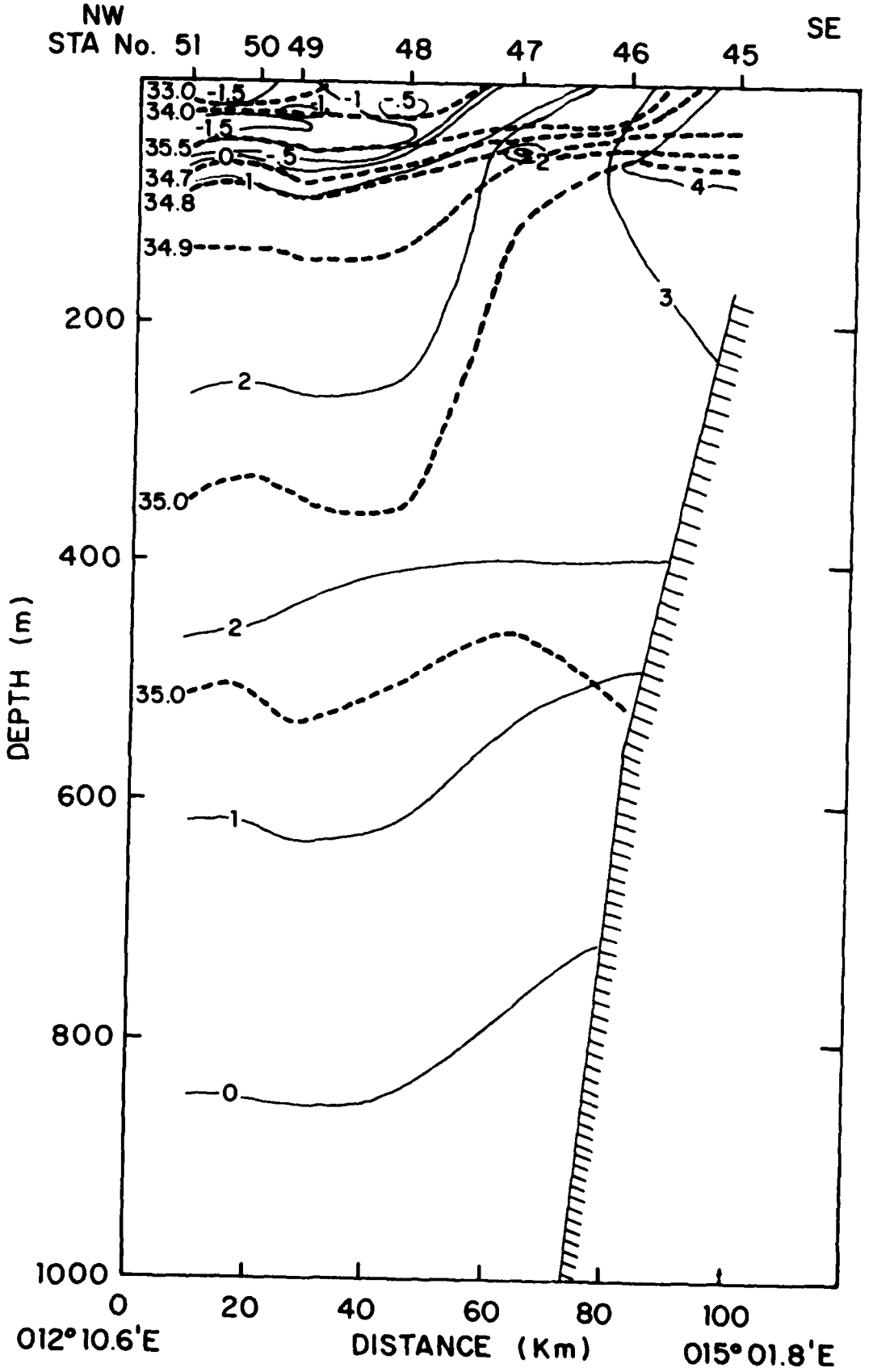

Figure 7. Temperature and salinity transect extending NW from 80.6°N, 15°E. The WSC, now cooled to just above 4°C, is observed to hug the coast.

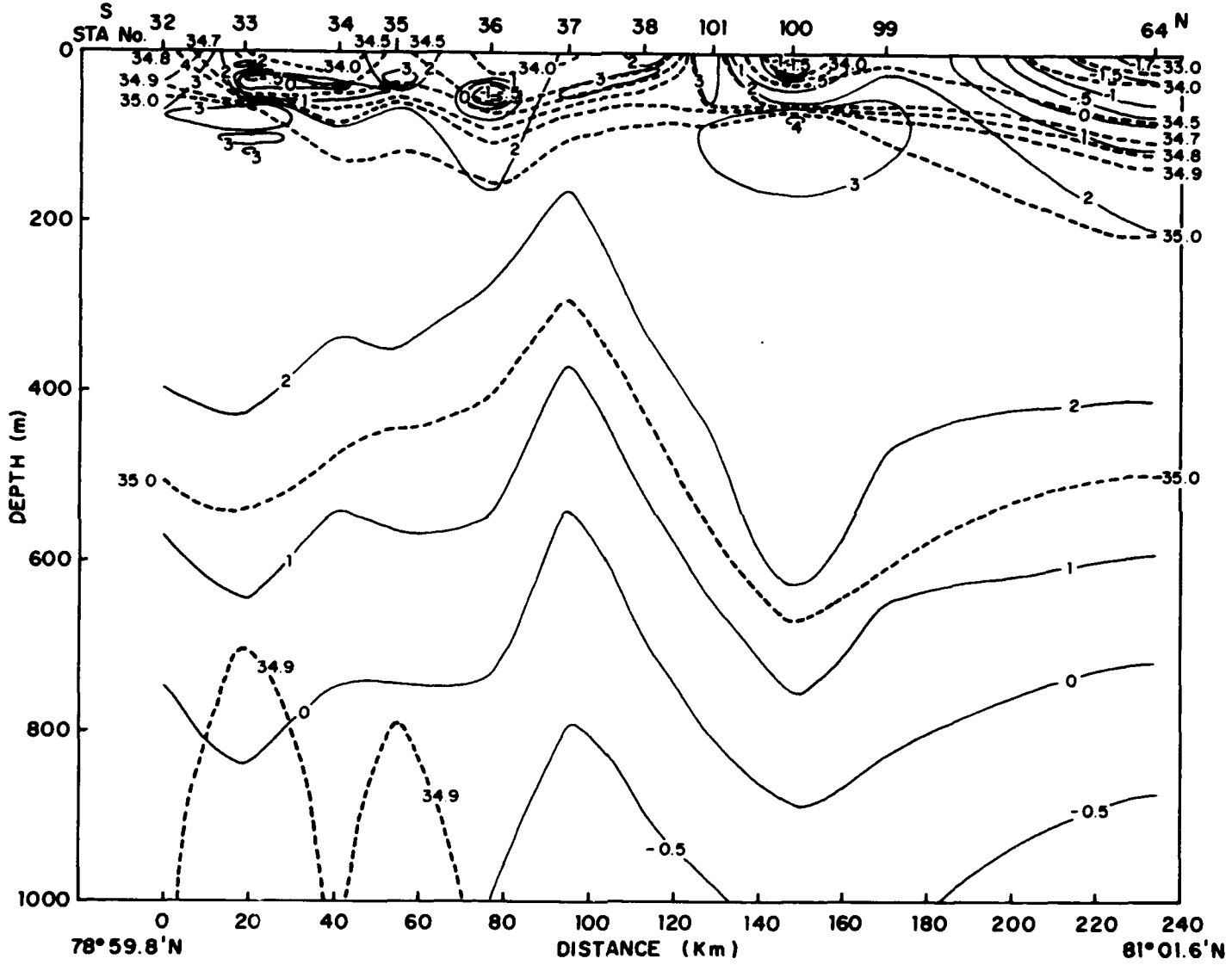

Figure 8. A longitudinal temperature and salinity transect centered on 2°E which shows the maximum temperature of the westward flowing component of the WSC is located just outside the ice edge near Station 100.

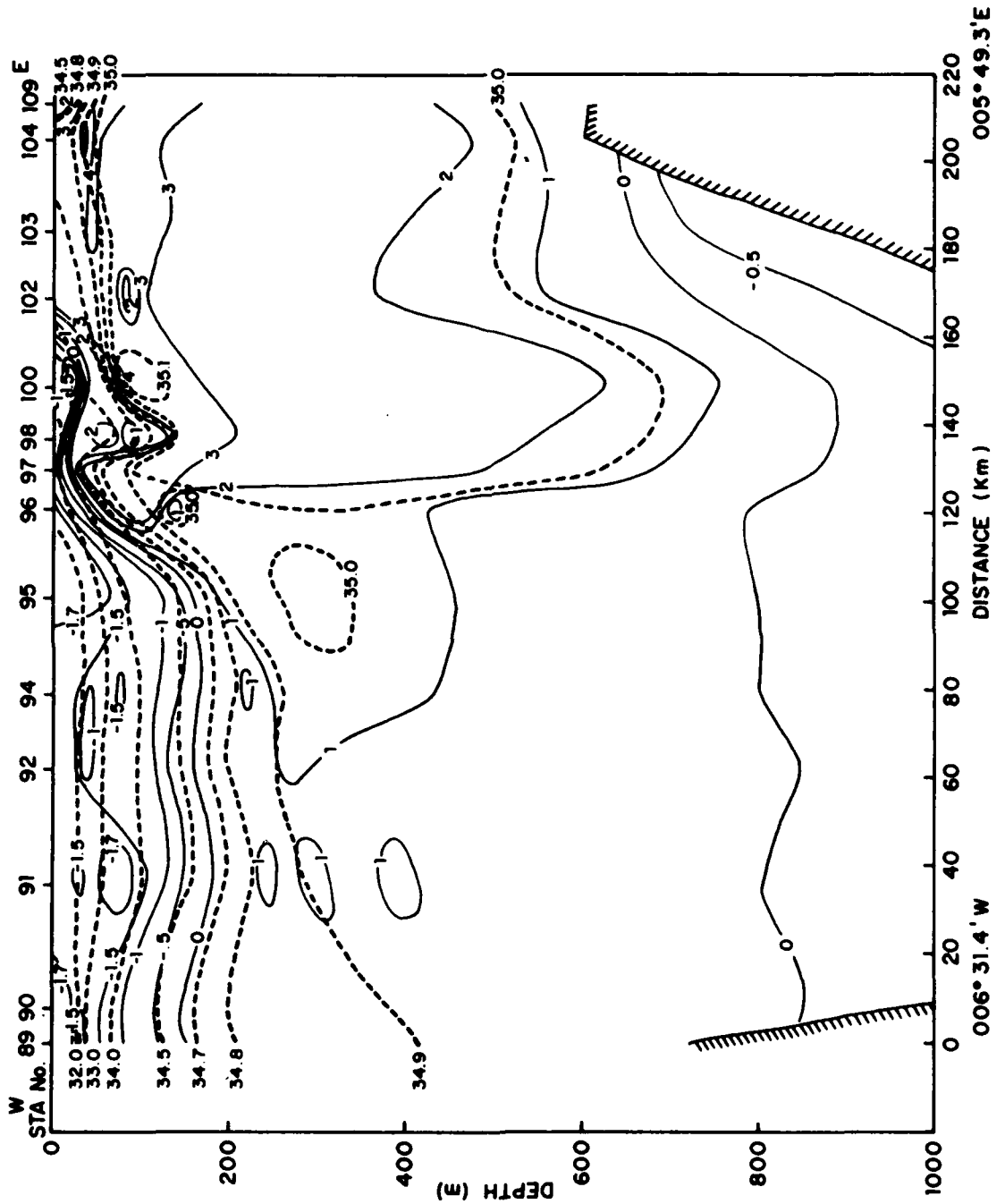

Figure 9. A temperature and salinity transect along 80.5°N illustrating the convergence near Stations 96 to 102 of the warm WSC with the cold PW exiting the Arctic Ocean.

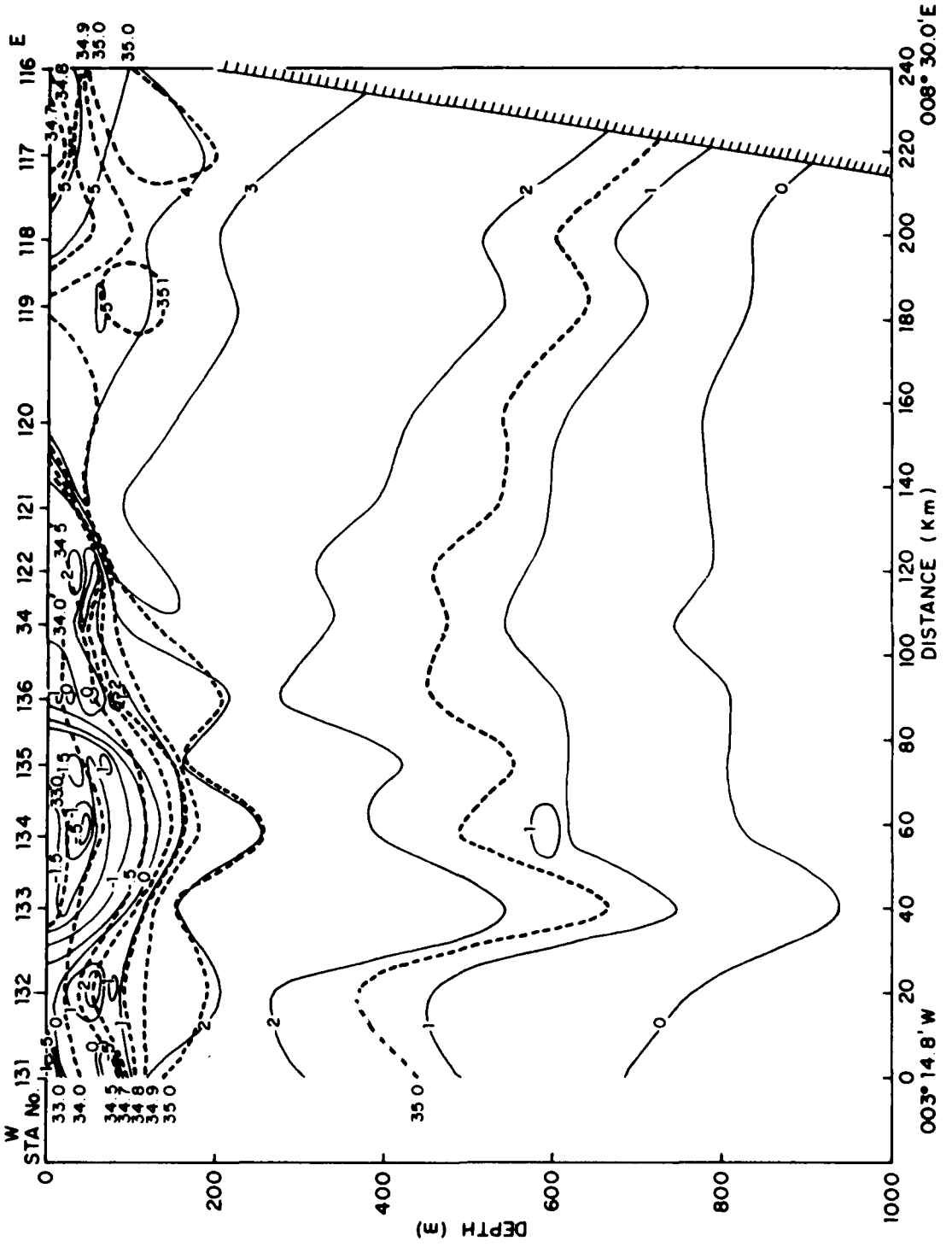

Figure 10. A temperature and salinity transect through a cold core eddy near 79.5°W. It was not possible to discern if this eddy was detached from the EGPF.

APPENDIX A

Explanation of Heading Codes

The heading of the printed output uses the coding from NODC Publication M-2, August 1964, with a few exceptions. Heading entries which are not self-explanatory are as follows: MSQ is the Marsden square, and DPTH is the water depth in meters. Wave source direction (WVD) is in tens of degrees, but the direction 00 indicates calm seas due to ice dampening. The significant wave height is coded by Table 10 (code - 2 = height in meters). Wind speed, V, is coded as Beaufort force, Table 17. The barometer is in tenths of millibars, omitting the 900 or 1000 digit as appropriate; wet and dry bulb temperatures are in degrees C. The present weather is from Table 21 with cloud type and amount from Tables 25 and 26, respectively. The combination 4 X 9 indicates that clouds cannot be observed usually because of fog conditions. The visibility is from Table 27 which is roughly in powers of two with code 4 = 1-2 km. The ice concentration, ICE, is in tenths; amounts less than one tenth are preceded by a minus sign and indicate concentrations in powers of ten, e.g., 10^{-4} = -4.

The entry, NAV, is a code to identify the accuracy of each station position based upon the navigation system used. Code 1 indicates a position determined by visual sightings, radar or by navigation satellite; Code 2 a position determined by Omega or Loran; and Code 3 a position determined by dead reckoning.

The heading data are listed sequentially with increasing station number.

STATION DATA MIZLANT 85 (ARCTIC EAST 1985)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N73-58.7	W003-20.6	253	09	04	85	22.3	1-	3000	1	0	12	2	13	6	137	03.0	02.5	1	3	7	6
31	NW	N75-00.0	E000-00.0	288	09	05	85	10.8	2-	3666	1	0	02	3	02	5	127	02.5	02.1	7	6	7	6
31	NW	N75-38.9	W001-16.2	253	09	05	85	16.4	3-	3676	1	0	02	3	36	6	138	01.6	01.6	7	6	7	6
31	NW	N76-24.2	W002-39.6	253	09	05	85	22.7	4-	3676	1	0	01	4	01	6	159	01.6	00.0	1	6	7	6
31	NW	N77-53.9	W006-01.7	253	09	06	85	12.8	5-	374	1	6	07	0	34	6	212	00.0	00.0	7	6	8	6
31	NW	N77-59.4	W006-54.9	253	09	06	85	17.2	6-	355	1	8	00	0	32	5	225	00.5	-00.6	1	8	7	7
31	NW	N77-59.2	W006-28.6	253	09	06	85	19.7	7-	310	1	6	00	0	35	5	238	-01.1	-01.7	2	8	7	7
31	NW	N77-59.6	W006-12.0	253	09	06	85	22.3	8-	310	1	6	00	0	35	5	236	-01.7	-01.7	2	7	8	6
31	NW	N78-00.5	W006-09.6	253	09	07	85	04.1	9-	318	1	1	00	0	33	5	231	-01.1	-01.1	4	7	8	7
31	NW	N78-00.0	W005-38.1	253	09	07	85	06.6	10-	337	1	-2	00	0	35	5	238	-01.1	-01.1	7	6	8	4
31	NW	N78-02.4	W005-07.0	253	09	07	85	09.7	11-	564	1	6	06	1	34	6	240	00.0	-00.6	7	6	8	5
31	NW	N78-00.1	W004-15.9	253	09	07	85	11.6	12-	2550	1	0	04	1	35	4	244	00.0	-00.6	7	7	8	4
31	NW	N77-59.4	W003-38.3	253	09	07	85	14.1	13-	2751	1	0	01	2	34	5	248	-00.6	-01.1	7	7	8	7
31	NW	N78-00.2	W003-13.6	253	09	07	85	15.6	14-	2751	1	0	01	2	33	5	241	-00.6	-00.6	2	6	8	7
31	NW	N78-01.0	W002-33.5	253	09	07	85	17.1	15-	2839	1	0	36	2	33	5	240	00.0	-01.1	2	6	8	7
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31	NW	N78-00.0	E002-09.0	288	09	08	85	06.1	19-	3080	1	0	36	1	35	4	229	-00.6	-01.1	1	6	5	7
31	NW	N77-59.9	E004-32.0	288	09	08	85	09.5	20-	2750	1	0	36	2	02	3	229	01.6	01.1	1	6	6	7
31	NW	N78-00.1	E006-02.5	288	09	08	85	12.2	21-	2200	1	0	02	1	36	3	233	02.2	01.1	1	6	7	7
31	NW	N78-00.2	E007-14.5	288	09	08	85	14.3	22-	3205	1	0	35	1	02	3	230	02.2	00.5	7	6	7	7
31	NW	N77-59.9	E007-48.7	288	09	08	85	16.2	23-	2385	1	0	36	1	05	3	226	01.6	00.5	7	8	5	7

STATION DATA MIZLANT 85 (ARCTIC EAST 1985)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
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31	NW	N78-59.6	E005-03.8	288	09	09	85	14.0	30-	2385	1	0	00	0	07	3	191	02.8	01.6	2	6	8	6
31	NW	N79-00.0	E003-58.1	288	09	09	85	16.0	31-	2747	1	0	03	1	33	2	177	02.8	01.6	2	6	8	7
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31	NW	N79-08.6	E002-19.6	288	09	09	85	20.1	33-	4210	1	0	30	1	30	3	157	02.2	01.6	2	6	8	7
31	NW	N79-19.9	E001-58.1	288	09	09	85	22.2	34-	3300	1	0	30	1	34	4	136	02.2	00.5	7	6	8	4
31	NW	N79-27.9	E001-58.7	288	09	10	85	03.2	35-	2020	1	0	31	1	31	5	082	00.5	00.0	7	7	8	3
31	NW	N79-40.3	E001-58.9	288	09	10	85	05.3	36-	1690	1	0	33	1	12	9	069	00.0	-00.6	7	7	8	3
31	NW	N79-50.3	E001-59.4	288	09	10	85	07.4	37-	3438	1	0	33	2	22	6	055	-01.1	-01.7	7	7	8	3
31	NW	N80-00.0	E001-59.0	936	09	10	85	09.2	38-	2678	1	0	27	2	22	6	052	-00.6	-00.6	7	7	8	3
31	NW	N80-00.3	E003-24.2	936	09	10	85	11.3	39-	2294	1	0	26	2	22	6	060	00.5	00.0	7	7	8	4
31	NW	N80-00.8	E004-50.8	936	09	10	85	13.4	40-	1194	1	0	30	3	32	6	085	00.0	00.0	7	7	8	4
31	NW	N80-00.0	E006-20.7	936	09	10	85	16.0	41-	831	1	0	24	4	22	7	116	00.0	-00.6	7	7	8	5
31	NW	N80-02.3	E009-13.3	936	09	10	85	19.8	42-	498	1	0	24	1	23	7	124	00.0	00.0	2	7	8	7
31	NW	N80-03.9	E010-38.6	935	09	10	85	21.4	43-	445	1	0	20	1	22	7	130	00.5	00.5	2	7	8	7
31	NW	N80-05.0	E012-00.1	935	09	10	85	23.0	44-	90	1	0	23	4	21	7	144	01.6	01.1	1	7	6	7
31	NW	N80-38.2	E015-01.8	935	09	11	85	02.9	45-	183	1	0	24	3	20	5	148	03.4	02.2	2	8	6	7
31	NW	N80-47.1	E014-34.0	935	09	11	85	04.3	46-	547	1	0	22	3	20	5	155	01.1	00.5	7	7	8	1

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NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N80-55.5	E013-58.2	935	09	11	85	06.3	47-	1654	1	0	21	3	22	5	150	01.1	01.1	1	7	6	4
31	NW	N81-03.4	E013-21.3	935	09	11	85	08.9	48-	2111	1	0	20	3	20	4	143	02.2	01.6	1	8	6	7
31	NW	N81-10.6	E012-42.0	935	09	11	85	10.7	49-	2203	1	8	00	0	19	4	154	02.2	01.6	7	6	7	7
31	NW	N81-14.6	E012-36.3	935	09	11	85	13.3	50-	2203	1	8	00	0	20	4	150	01.1	00.5	7	6	7	8
31	NW	N81-19.1	E012-10.6	935	09	11	85	15.5	51-	1632	1	6	00	0	21	4	154	01.1	00.5	7	7	8	8
31	NW	N81-12.4	E012-01.1	935	09	11	85	19.5	52-	2668	1	6	00	0	18	4	152	00.0	-00.6	2	6	8	8
31	NW	N81-10.5	E011-24.5	935	09	11	85	22.5	53-	2120	1	7	00	0	20	4	150	01.1	00.5	2	7	8	7
31	NW	N80-57.1	E011-08.5	935	09	12	85	07.2	54-	1873	1	7	00	0	21	5	129	02.2	01.6	2	7	8	7
31	NW	N80-57.1	E009-30.7	936	09	12	85	12.5	55-	1014	1	3	00	0	20	4	135	01.1	00.5	4	7	8	6
31	NW	N80-56.8	E008-26.7	936	09	12	85	16.9	56-	992	1	6	00	0	19	5	130	01.6	01.6	2	7	8	5
31	NW	N80-57.3	E007-34.8	936	09	12	85	22.1	57-	922	1	8	00	0	19	3	120	01.6	01.1	6	7	8	7
31	NW	N80-53.7	E006-35.8	936	09	13	85	05.9	58-	922	1	5	00	0	16	3	096	01.6	01.1	1	3	7	7
31	NW	N80-58.6	E005-43.1	936	09	13	85	10.4	59-	740	1	7	00	0	13	4	088	01.6	01.1	1	3	7	8
31	NW	N80-53.2	E004-11.8	936	09	13	85	15.3	60-	694	1	7	00	0	08	4	067	02.2	01.1	1	3	3	7
31	NW	N80-56.9	E003-22.1	936	09	13	85	17.3	61-	803	1	7	00	0	07	3	065	00.5	-00.6	1	0	8	8
31	NW	N81-10.1	E002-51.8	936	09	13	85	20.6	62-	886	1	7	00	0	06	4	060	00.0	-00.6	1	0	2	8
31	NW	N81-06.4	E002-37.5	936	09	13	85	23.3	63-	941	1	7	00	0	04	4	050	-00.6	-01.1	1	0	1	8
31	NW	N81-06.4	E001-53.3	936	09	14	85	04.1	64-	1380	1	7	00	0	07	5	038	-01.7	-01.7	1	0	1	8
31	NW	N81-09.6	E000-42.8	936	09	14	85	07.1	65-	2476	1	6	00	0	04	5	034	-00.6	-00.6	1	0	1	8
31	NW	N81-05.9	E000-01.9	936	09	14	85	10.5	66-	2700	1	8	00	0	04	4	029	-01.1	-01.1	1	0	2	8
31	NW	N81-05.6	W000-54.3	901	09	14	85	13.9	67-	2750	1	7	00	0	07	5	909	-01.7	-01.7	1	0	2	6
31	NW	N81-09.6	W001-05.9	901	09	14	85	17.2	68-	2842	1	7	00	0	06	5	999	-01.7	-02.2	1	6	7	7
31	NW	N81-03.4	W002-03.5	901	09	14	85	22.9	69-	3664	1	5	00	0	05	5	988	-01.7	-01.7	1	6	8	7

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NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N81-06.5	W003-31.4	901	09	15	85	02.8	70-	2938	1	2	00	0	04	6	966	-01.7	-01.7	1	6	6	7
31	NW	N81-10.4	W004-38.7	901	09	15	85	05.9	71-	3300	1	2	00	0	03	5	969	-05.0	-05.6	1	6	8	8
31	NW	N81-12.2	W005-42.7	901	09	15	85	08.0	72-	2769	1	2	24	1	02	5	970	-05.6	-05.6	2	6	8	8
31	NW	N81-13.9	W006-27.3	901	09	15	85	10.4	73-	2203	1	5	21	1	03	5	967	-06.7	-06.7	2	6	8	8
31	NW	N81-14.4	W007-45.2	901	09	15	85	14.6	74-	1380	1	4	21	1	03	5	975	-06.1	-06.1	7	6	8	8
31	NW	N81-14.1	W008-50.5	901	09	15	85	17.8	75-	181	1	6	00	0	04	5	977	-06.7	-06.7	7	6	8	8
31	NW	N81-14.3	W010-41.9	902	09	15	85	20.2	76-	110	1	2	19	1	03	4	984	-06.1	-06.7	2	6	8	8
31	NW	N81-24.0	W010-59.9	902	09	15	85	23.3	77-	74	1	8	19	1	02	5	999	-06.7	-06.7	2	6	8	7
31	NW	N81-24.0	W006-59.8	901	09	16	85	12.7	78-	2568	1	6	19	1	01	4	000	-03.8	-04.4	2	7	8	7
31	NW	N81-31.8	W006-36.6	901	09	16	85	15.4	79-	3117	1	7	00	0	04	5	998	-04.4	-05.6	2	7	8	7
31	NW	N81-35.9	W007-41.2	901	09	16	85	17.8	80-	2427	1	8	00	0	02	5	035	-04.4	-05.0	2	6	8	6
31	NW	N81-41.8	W007-27.4	901	09	16	85	23.0	81-	2747	1	7	00	0	32	4	017	-05.6	-05.6	2	6	8	7
31	NW	N81-43.2	W006-21.4	901	09	17	85	04.5	82-	3336	1	8	00	0	36	4	022	-05.0	-06.1	2	6	8	8
31	NW	N81-45.5	W005-14.1	901	09	17	85	07.3	83-	3392	1	8	00	0	01	4	032	-04.4	-05.0	1	6	6	8
31	NW	N81-47.1	W004-46.7	901	09	17	85	14.9	84-	3311	1	8	00	0	33	3	055	-04.4	-06.7	1	6	7	7
31	NW	N81-27.3	W005-45.9	901	09	18	85	02.6	85-	2806	1	6	00	0	35	3	070	-05.0	-05.6	2	6	8	7
31	NW	N81-20.9	W006-47.6	901	09	18	85	09.5	86-	2605	1	7	00	0	33	4	069	-03.8	-04.4	2	7	8	6
31	NW	N81-12.7	W006-43.2	901	09	18	85	12.0	87-	1892	1	8	00	0	34	4	069	-03.0	-05.6	2	7	8	6
31	NW	N80-56.7	W006-55.9	901	09	18	85	17.4	88-	1197	1	6	00	0	29	4	066	-05.0	-05.6	2	6	8	7
31	NW	N80-43.0	W006-31.4	901	09	18	85	21.0	89-	756	1	6	00	0	33	3	062	-05.0	-05.6	4	7	8	6
31	NW	N80-44.2	W006-06.4	901	09	18	85	22.9	90-	1288	1	4	00	0	03	2	060	-05.0	-05.6	4	7	8	3
31	NW	N80-42.5	W004-30.1	901	09	19	85	05.7	91-	2934	1	4	00	0	31	3	064	-05.6	-06.7	1	7	8	7
31	NW	N80-29.9	W003-23.1	901	09	19	85	12.9	92-	3027	1	6	00	0	31	3	058	-04.4	-05.0	2	7	8	7

STATION DATA MIZLANT 85 (ARCTIC EAST 1985)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N80-28.0	W003-27.0	901	09	20	85	05.5	93-		1	6	00	0	01	3	073	-05.0	-05.6	2	6	8	7
31	NW	N80-27.7	W002-26.4	901	09	20	85	12.3	94-	3666	1	6	00	0	01	4	078	-06.1	-06.7	1	3	7	7
31	NW	N80-21.9	W001-25.5	901	09	20	85	17.2	95-	4159	1	8	00	0	36	4	069	-06.1	-06.7	1	6	7	7
31	NW	N80-19.7	W000-20.7	901	09	20	85	21.2	96-	2479	1	2	00	0	36	3	069	-05.0	-05.0	1	6	7	3
31	NW	N80-21.4	E000-35.4	936	09	21	85	03.8	97-	2655	1	4	00	0	02	4	093	-06.7	-07.2	1	8	4	7
31	NW	N80-21.0	E001-18.8	936	09	21	85	07.3	98-	2751	1	0	11	1	36	4	050	-05.0	-05.6	2	7	8	7
31	NW	N80-31.5	E002-03.8	936	09	21	85	09.3	99-	2473	1	0	14	1	36	3	065	-04.4	-05.0	7	7	8	6
31	NW	N80-19.2	E001-54.9	936	09	21	85	11.3	100-	1925	1	0	10	1	02	5	060	-01.7	-02.2	7	6	8	6
31	NW	N80-08.8	E001-59.8	936	09	21	85	11.3	101-	2294	1	0	09	1	06	4	058	-00.0	-00.0	2	6	8	7
31	NW	N80-22.2	E003-08.1	936	09	21	85	15.9	102-	1562	1	0	08	1	02	4	056	-00.0	-01.7	2	6	8	4
31	NW	N80-25.0	E004-00.0	936	09	21	85	17.6	103-	895	1	0	08	1	02	5	052	-00.0	-01.7	2	6	8	6
31	NW	N80-24.7	E005-14.4	936	09	21	85	19.5	104-	602	1	0	07	2	06	6	052	01.1	-01.1	2	6	8	6
31	NW	N80-38.9	E003-57.9	936	09	21	85	21.9	105-	884	1	0	08	1	06	5	064	00.0	-00.6	2	6	8	6
31	NW	N80-44.8	E003-11.6	936	09	22	85	01.2	106-	1014	1	8	00	0	04	3	063	-03.3	-03.8	2	7	8	5
31	NW	N80-49.0	E005-03.4	936	09	22	85	09.4	107-	666	1	1	00	0	05	5	054	-03.3	-03.8	2	7	8	7
31	NW	N80-40.2	E005-28.0	936	09	22	85	11.6	108-	692	1	0	08	1	05	5	052	-03.3	-03.8	2	7	8	6
31	NW	N80-30.1	E005-49.3	936	09	22	85	13.3	109-	611	1	0	04	0	03	5	048	-02.2	-02.8	7	7	8	6
31	NW	N80-19.8	E006-20.6	936	09	22	85	15.1	110-	566	1	0	07	2	02	6	043	-01.7	-02.8	7	7	8	6
31	NW	N80-07.9	E007-13.2	936	09	22	85	17.6	111-	520	1	0	06	2	02	5	040	00.0	-00.6	2	7	8	7
31	NW	N79-55.8	E008-19.8	288	09	22	85	19.9	112-	502	1	0	06	2	01	4	042	00.5	00.0	2	7	8	6
31	NW	N79-51.2	E008-55.8	288	09	22	85	21.4	113-	456	1	0	06	2	02	4	040	02.2	01.6	2	7	8	6
31	NW	N79-45.5	E009-35.7	288	09	22	85	22.9	114-	410	1	0	06	2	03	5	038	02.2	01.6	2	7	8	6
31	NW	N79-41.3	E009-55.8	288	09	23	85	03.7	115-	200	1	0	03	1	02	4	047	03.6	03.4	2	7	8	7

STATION DATA MIZLANT 85 (ARCTIC EAST 1985)

MAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N79-26.0	E008-30.0	288	09	23	85	06.5	116-	200	1	0	03	1	02	4	043	02.8	02.8	2	7	8	7
31	NW	N79-26.4	E007-27.1	288	09	23	85	07.8	117-	831	1	0	03	2	01	4	040	02.8	02.2	2	7	8	7
31	NW	N79-27.1	E006-31.6	288	09	23	85	09.5	118-	1396	1	0	01	1	01	4	050	02.8	02.2	2	7	8	7
31	NW	N79-26.7	E005-41.8	288	09	23	85	11.1	119-	2111	1	0	05	4	02	6	054	02.2	01.6	2	7	8	6
31	NW	N79-26.6	E004-20.7	288	09	23	85	13.1	120-	2568	1	0	04	4	02	6	073	02.2	01.1	2	7	8	7
31	NW	N79-21.2	E003-22.1	288	09	23	85	14.8	121-	2663	1	0	02	3	02	5	077	02.2	02.2	7	7	8	5
31	NW	N79-15.1	E002-33.6	288	09	23	85	16.4	122-	4397	1	0	03	3	02	5	087	02.2	02.2	7	7	8	5
31	NW	N79-09.9	E001-48.8	288	09	23	85	17.7	123-	3300	1	0	03	3	02	4	094	02.2	01.6	7	7	8	5
31	NW	N79-07.9	E000-58.2	288	09	23	85	19.2	124-	2750	1	0	03	4	34	5	102	01.6	01.1	2	7	8	6
31	NW	N79-08.1	W000-05.9	253	09	23	85	20.8	125-	2702	1	0	03	3	35	6	114	01.6	01.1	7	7	8	5
31	NW	N79-08.6	W001-03.7	253	09	23	85	22.3	126-	2056	1	0	03	3	34	4	124	-00.6	-01.1	2	7	8	5
31	NW	N79-07.9	W001-47.1	253	09	23	85	23.8	127-	2572	1	0	03	2	35	4	136	-01.1	-01.7	2	7	8	6
31	NW	N79-07.7	W002-40.6	253	09	24	85	01.4	128-	2081	1	0	35	1	35	5	140	-02.8	-03.3	2	8	8	7
31	NW	N79-06.9	W003-26.4	253	09	24	85	03.1	129-	2203	1	0	30	1	35	4	146	-03.8	-04.4	2	8	8	7
31	NW	N79-05.3	W004-09.6	253	09	24	85	05.1	130-	1925	1	5	00	0	36	4	152	-03.3	-03.8	1	6	6	7
31	NW	N79-21.5	W003-14.8	253	09	24	85	11.3	131-	2294	1	5	00	0	36	4	173	-03.8	-04.4	2	7	8	5
31	NW	N79-21.8	W002-15.4	253	09	24	85	13.4	132-	2449	1	1	34	1	36	4	174	-05.6	-05.6	4	7	8	3
31	NW	N79-22.9	W001-24.1	253	09	24	85	15.3	133-	2662	1	2	00	0	33	3	174	-05.6	-05.6	4	7	3	6
31	NW	N79-21.9	W000-27.7	253	09	24	85	17.4	134-	2842	1	-2	07	1	01	4	169	-05.6	-05.6	4	7	6	5
31	NW	N79-22.1	E000-24.3	288	09	24	85	19.1	135-	3137	1	0	06	1	36	3	168	-03.8	-04.4	2	7	8	6
31	NW	N79-19.4	E001-10.1	288	09	24	85	20.9	136-	3119	1	0	05	2	35	5	171	-03.3	-03.8	7	8	6	6
31	NW	N79-34.4	W000-17.2	253	09	25	85	01.1	137-	2841	1	1	00	0	35	4	178	-03.8	-04.4	2	6	8	7
31	NW	N79-45.5	E000-45.5	288	09	25	85	03.7	138-	2740	1	0	04	1	01	4	174	-03.3	-04.4	2	8	8	7

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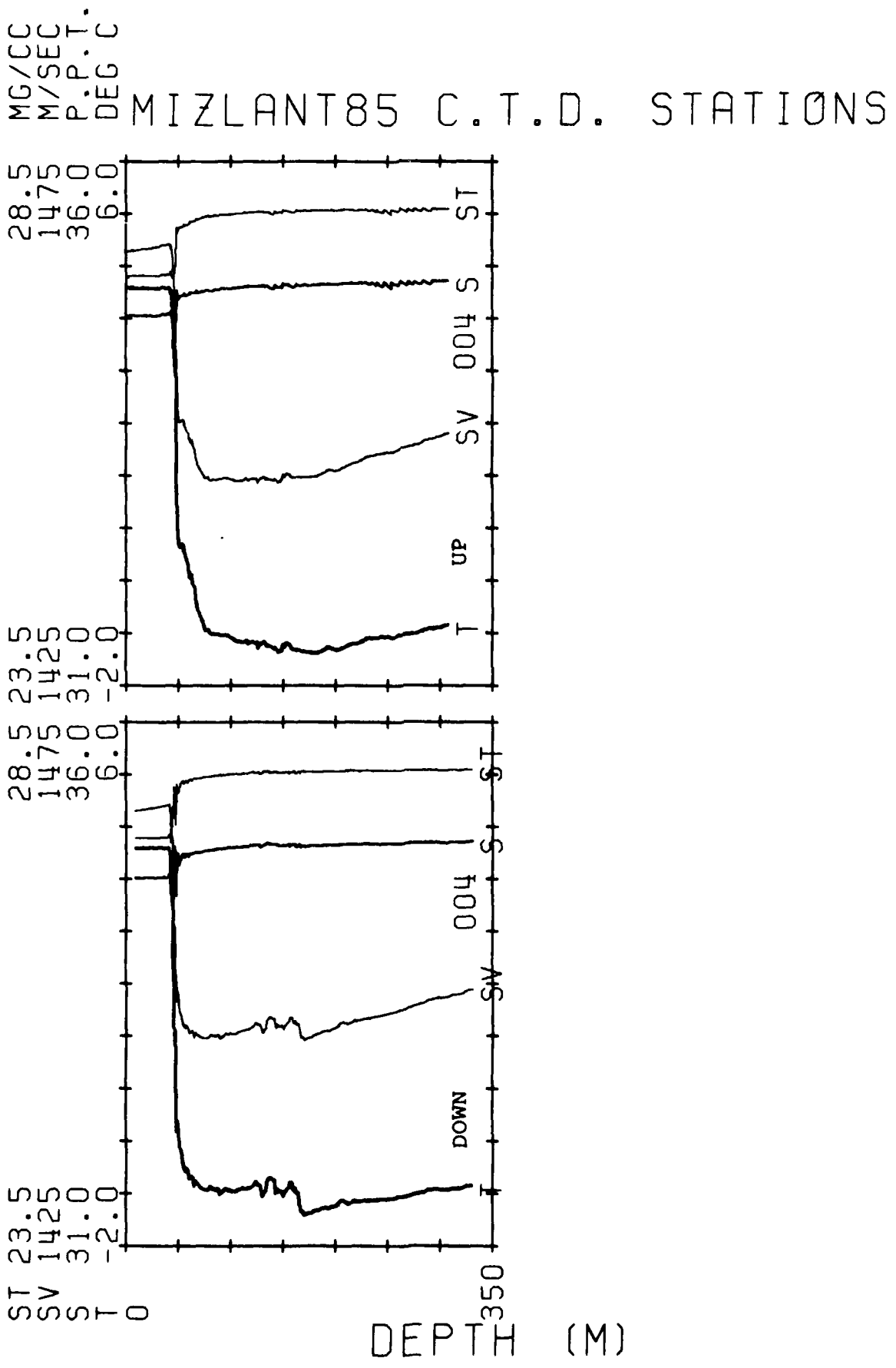
NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N79-47.5	W000-03.4	253	09	25	85	05.7	139-	2659	1	0	05	1	35	4	183	-04.4	-04.4	2	6	8	7
31	NW	N79-57.9	W000-12.6	253	09	25	85	07.6	140-	2564	1	0	05	1	01	4	184	-08.9	-08.9	4	7	8	1
31	NW	N79-53.6	W001-03.5	253	09	25	85	09.4	141-	2751	1	0	06	2	36	4	189	-10.0	-10.6	7	7	8	7
31	NW	N79-45.1	W001-20.1	253	09	25	85	11.0	142-	3297	1	1	05	2	36	4	186	-10.0	-10.6	1	7	7	7
31	NW	N79-45.6	W000-35.0	253	09	25	85	12.9	143-	2785	1	0	05	2	36	6	182	-11.1	-11.1	2	7	8	6
31	NW	N79-44.7	W000-06.9	253	09	25	85	14.0	144-	2808	1	0	05	1	01	5	181	-11.1	-11.1	2	7	8	7
31	NW	N79-30.3	W000-26.8	253	09	25	85	16.3	145-	2753	1	0	09	1	01	4	184	-08.9	-08.9	2	7	8	6
31	NW	N79-28.0	W001-21.0	253	09	25	85	17.9	146-	2662	1	8	00	0	01	5	189	-08.3	-08.9	2	7	8	6
31	NW	N79-30.7	W002-09.0	253	09	25	85	19.3	147-	2660	1	8	00	0	36	4	186	-10.0	-10.0	1	7	5	6
31	NW	N79-33.5	W001-59.1	253	09	25	85	20.4	148-	2660	1	8	00	0	02	6	178	-10.0	-10.6	1	7	5	7
31	NW	N79-31.4	W002-11.6	253	09	26	85	00.7	149-	2640	1	8	00	0	01	4	185	-08.9	-09.4	1	7	7	7
31	NW	N79-31.3	W002-54.5	253	09	26	85	02.4	150-	2203	1	4	00	0	36	3	185	-09.4	-09.4	1	4	3	7
31	NW	N79-37.3	W003-13.6	253	09	26	85	05.0	151-	2294	1	8	00	0	35	5	185	-09.4	-09.4	1	4	5	7
31	NW	N79-37.9	W002-51.1	253	09	26	85	08.9	152-	2568	1	8	00	0	35	4	186	-07.8	-07.8	2	4	8	7
31	NW	N79-27.7	W001-24.5	253	09	26	85	13.9	153-	2568	1	8	00	0	36	5	165	-06.1	-06.7	1	4	5	7
31	NW	N79-16.0	W001-57.0	253	09	26	85	15.7	154-	2568	1	0	08	1	01	6	159	-05.6	-06.1	2	7	8	7
31	NW	N79-15.2	W002-51.4	253	09	26	85	17.3	155-	2385	1	0	06	2	35	6	156	-05.6	-06.7	2	7	8	7
31	NW	N79-09.0	W003-45.3	253	09	26	85	20.4	156-	2020	1	8	00	0	36	6	163	-06.1	-07.2	2	7	8	7

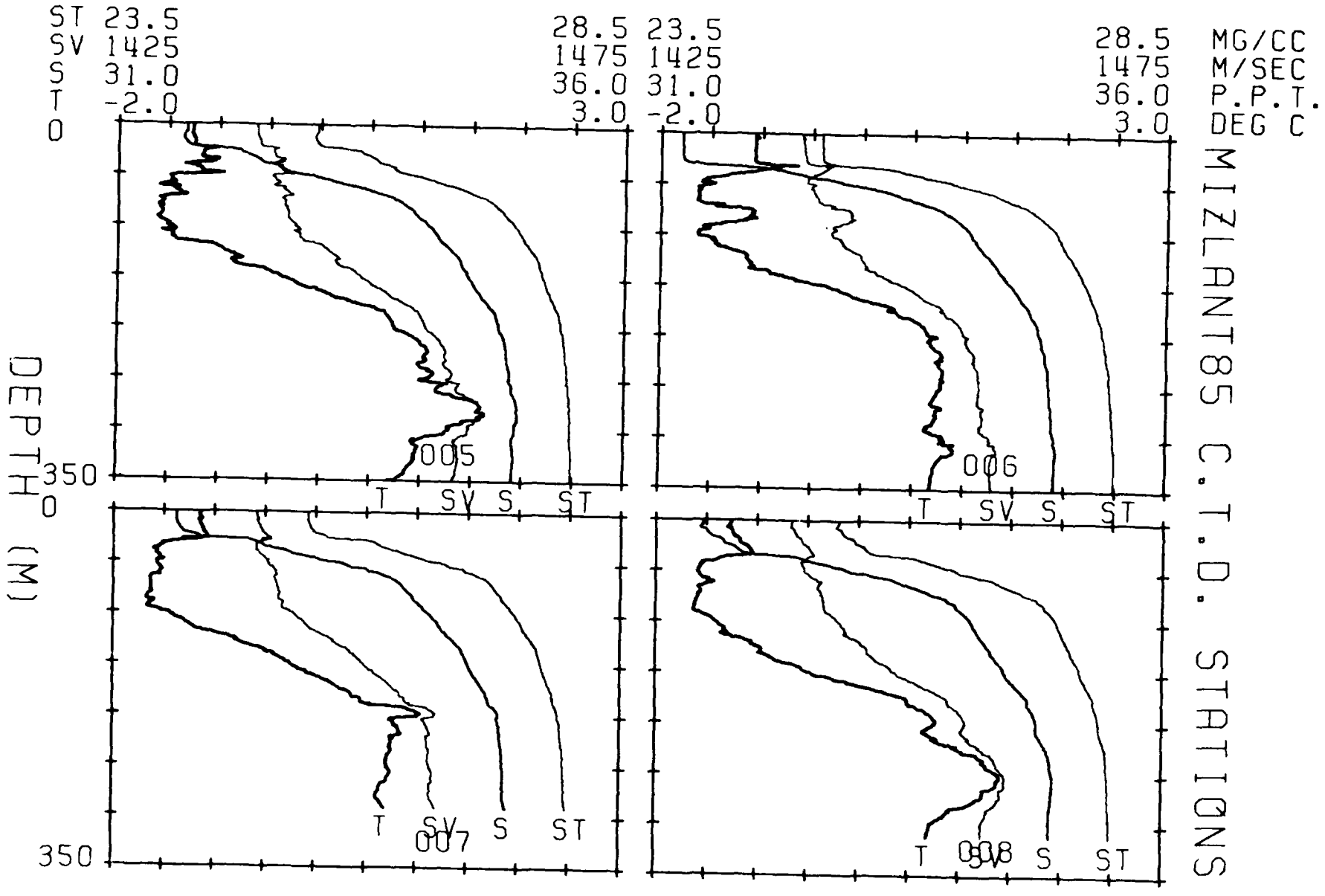
APPENDIX B

Property Profiles For MIZLANT 85 Stations

This section contains plots of temperature, salinity, sound speed, and sigma-t for the 150 of 156 stations of MIZLANT 85 which were successfully recovered from the cassette tapes of the data logging system. Six stations were not recovered from the cassettes in digital form. These stations are: 1, 2, 3, 77, 78 and 115. Raw temperature and salinity profile plots for these stations are available but are not included in this report. Two stations had serious anomalies introduced by the editing program, 118 and 148. In the interests of expeditious reporting, these two are shown with the corrections traced in; they will be formally corrected later. Station 19D (down) was recorded with too low a gain and is useful only near the surface. The upward trace failed to reach the surface. Both halves are shown in one diagram with the missing part of the profiles sketched in. Down and up traces were obtained at about one third of the stations, mostly during the first part of the cruise. With a few exceptions, only the down casts are presented in this report.

Within the ice, the ranges of water properties are small. We have used this fact to advantage by expanding scales to better show the small differences which often are interesting in these cold waters. Outside the ice the ranges are moderate, necessitating a change in scaling. Other changes in scaling have been made to keep plots separated in some instances. To conserve paper, shallow-water stations are plotted four per page while the deep-water stations are shown two per page. To assist in distinguishing between curves the temperature profile has been darkened three times while the salinity trace only twice. The curves are also labeled: T for temperature, S for salinity, SV for sound velocity, and ST for sigma-t.


MIZLANT85 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.5
1475
36.0
6.0
ST
S
004
SV
UP
T
23.5
1425
31.0
-2.0
DOWN
ST
SV
T
0
350
DEPTH (M)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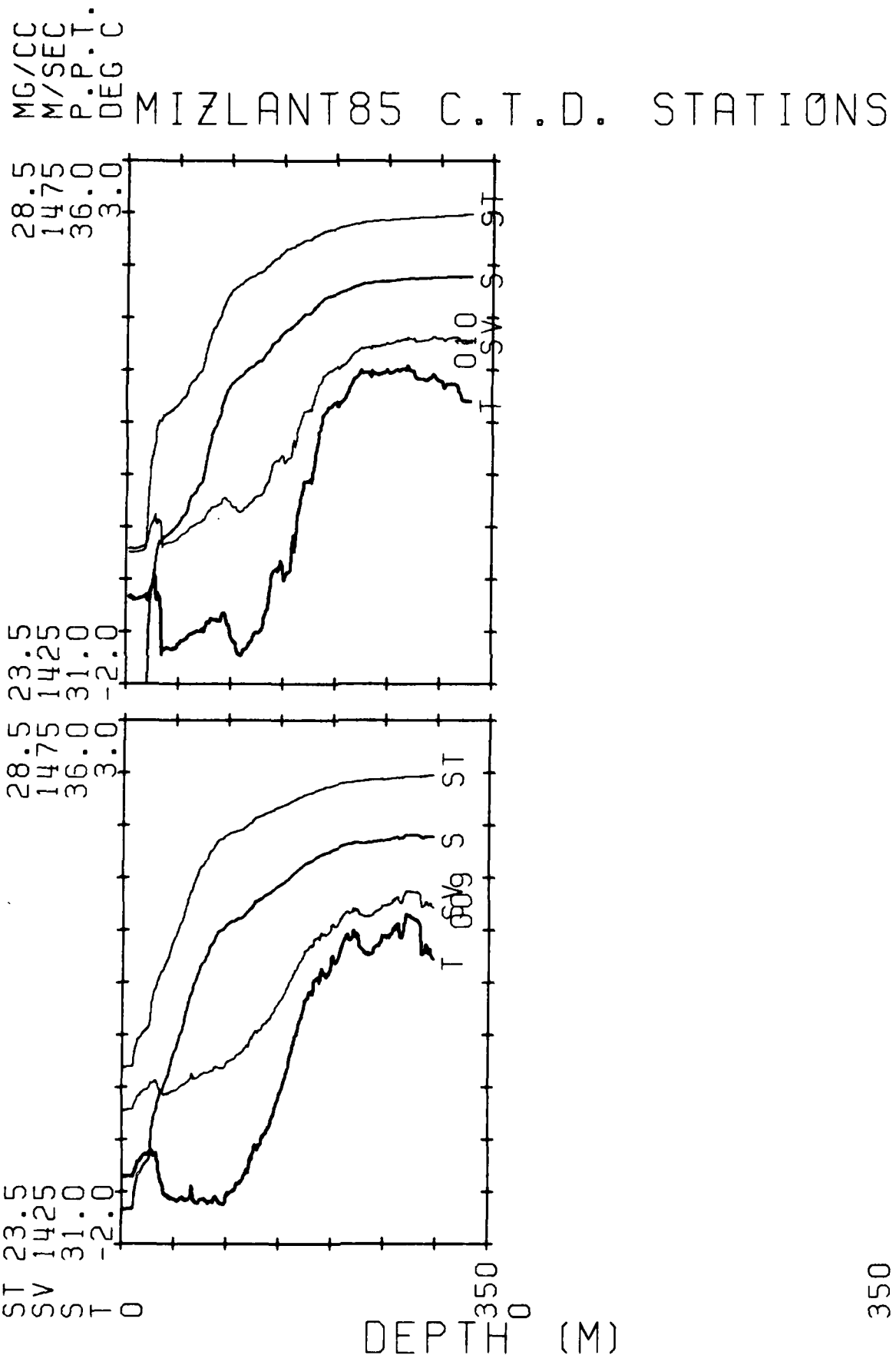
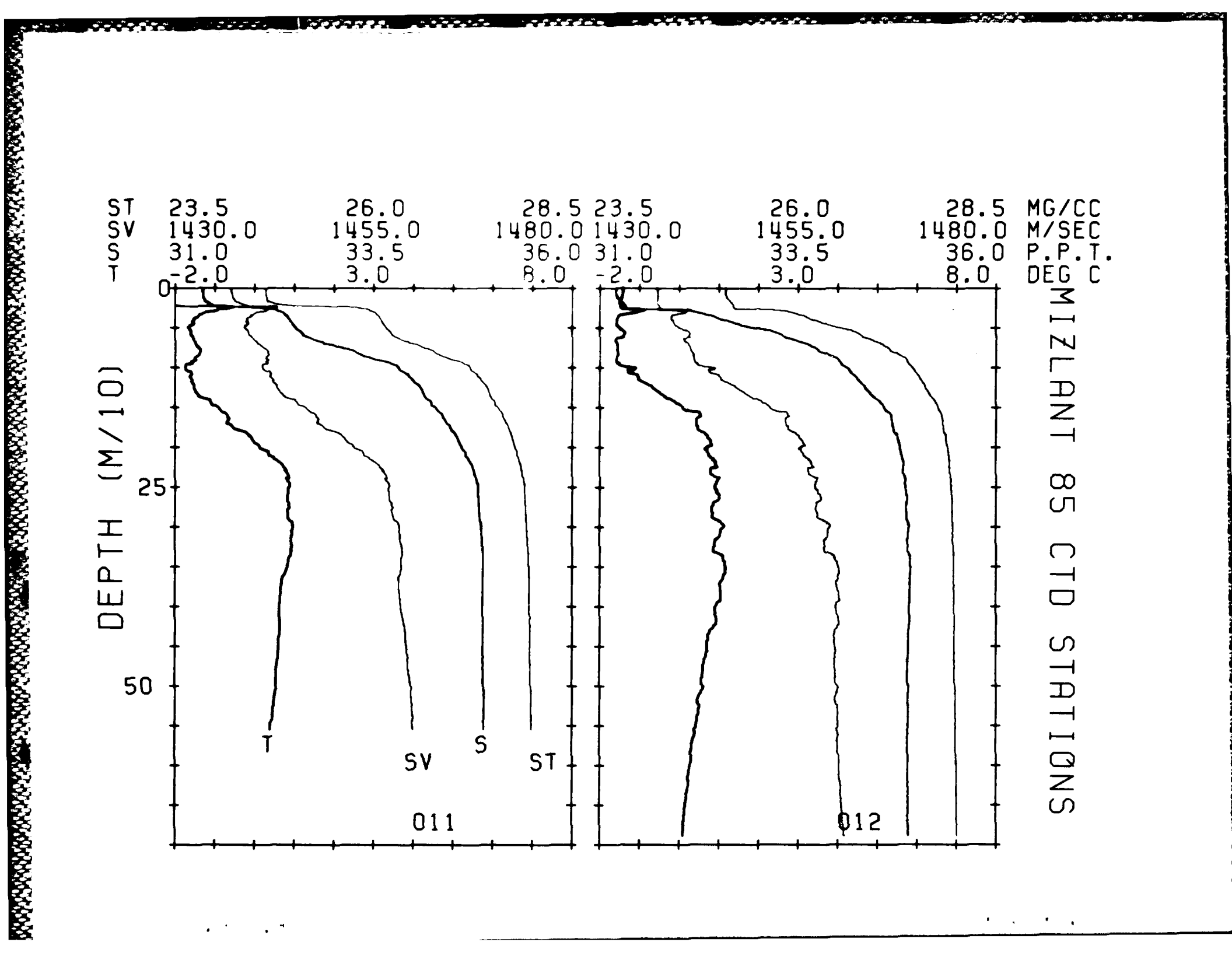
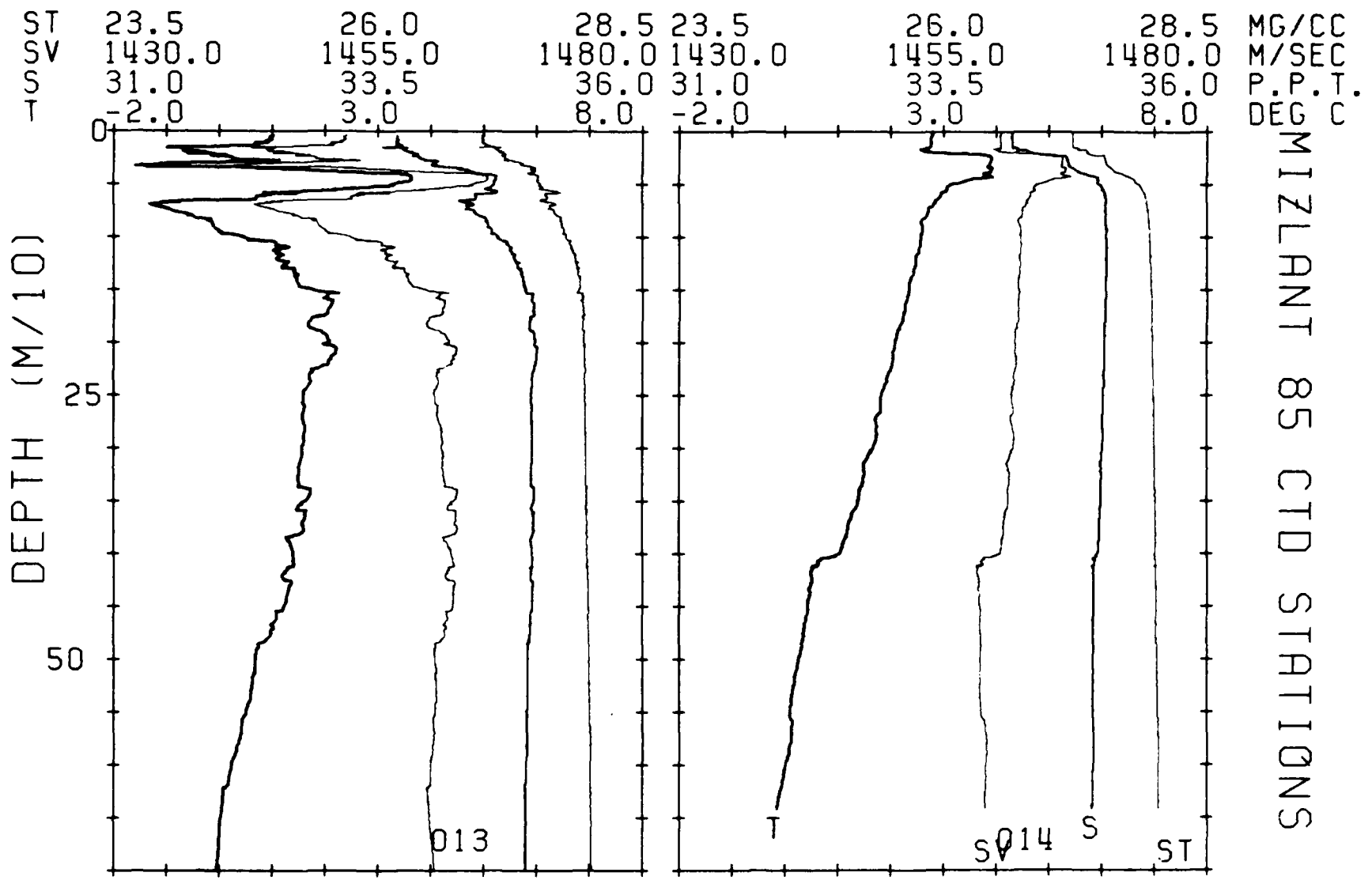
SV 1425
S 31.0
T -2.0
0
350
28.5 23.5
1475 1425
36.0 31.0
3.0 -2.0
28.5
1475
36.0
3.0
MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT85 C.T.D. STATIONS
DEPTH (M)
005
006
007
008
T SV S ST


MIZLANT85 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.5
1475
36.0
3.0
23.5
1425
31.0
-2.0
ST
SV
S
T
0
350
DEPTH (M)


ST 23.5 26.0 28.5 23.5 26.0 28.5 MG/CC
SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
25
50
T
SV
S
ST
011
012
MIZLANT 85 CTD STATIONS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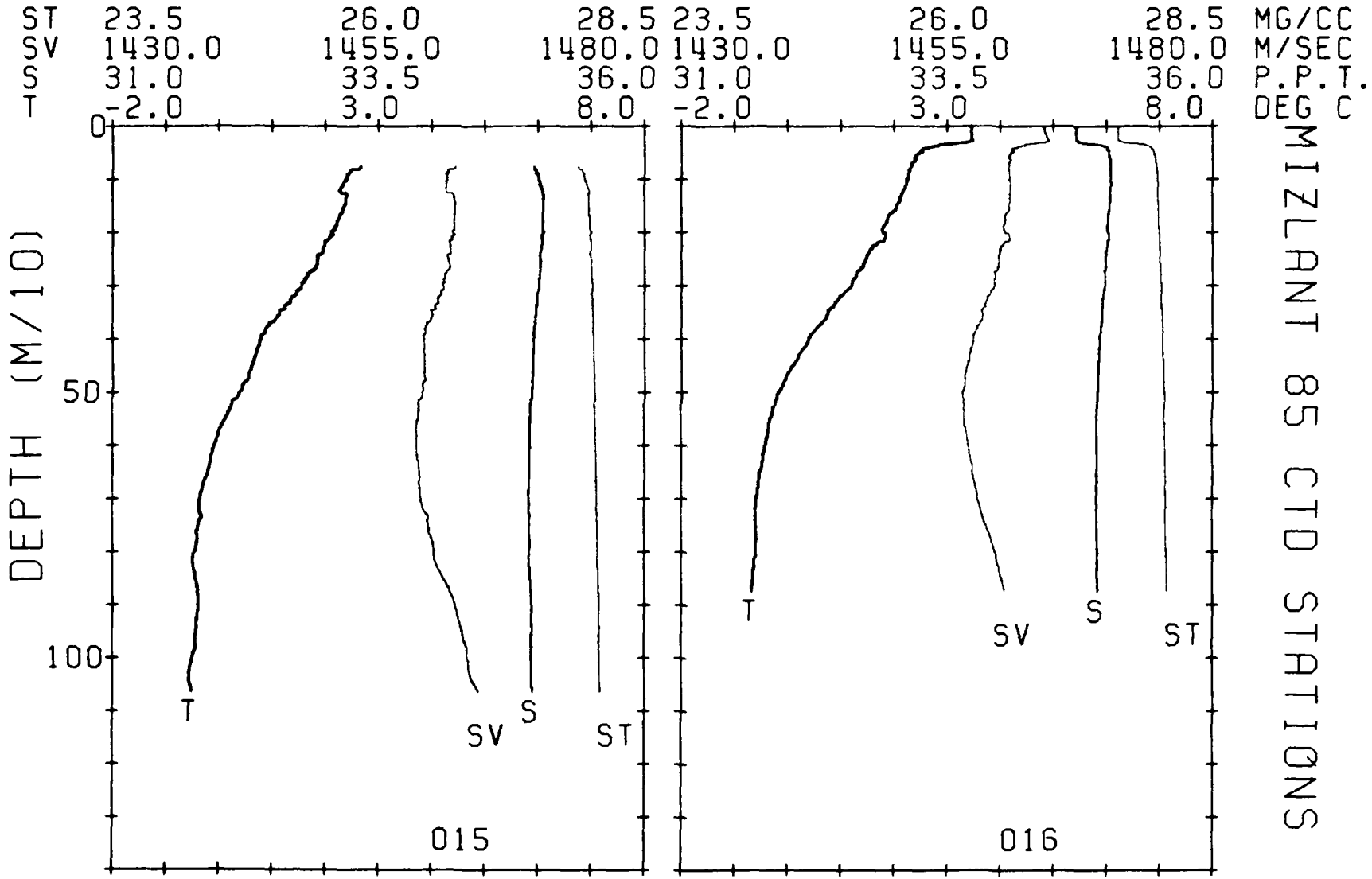
SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
25
50
013
014
T
SV
S
ST
MIZLANT 85 CTD STATIONS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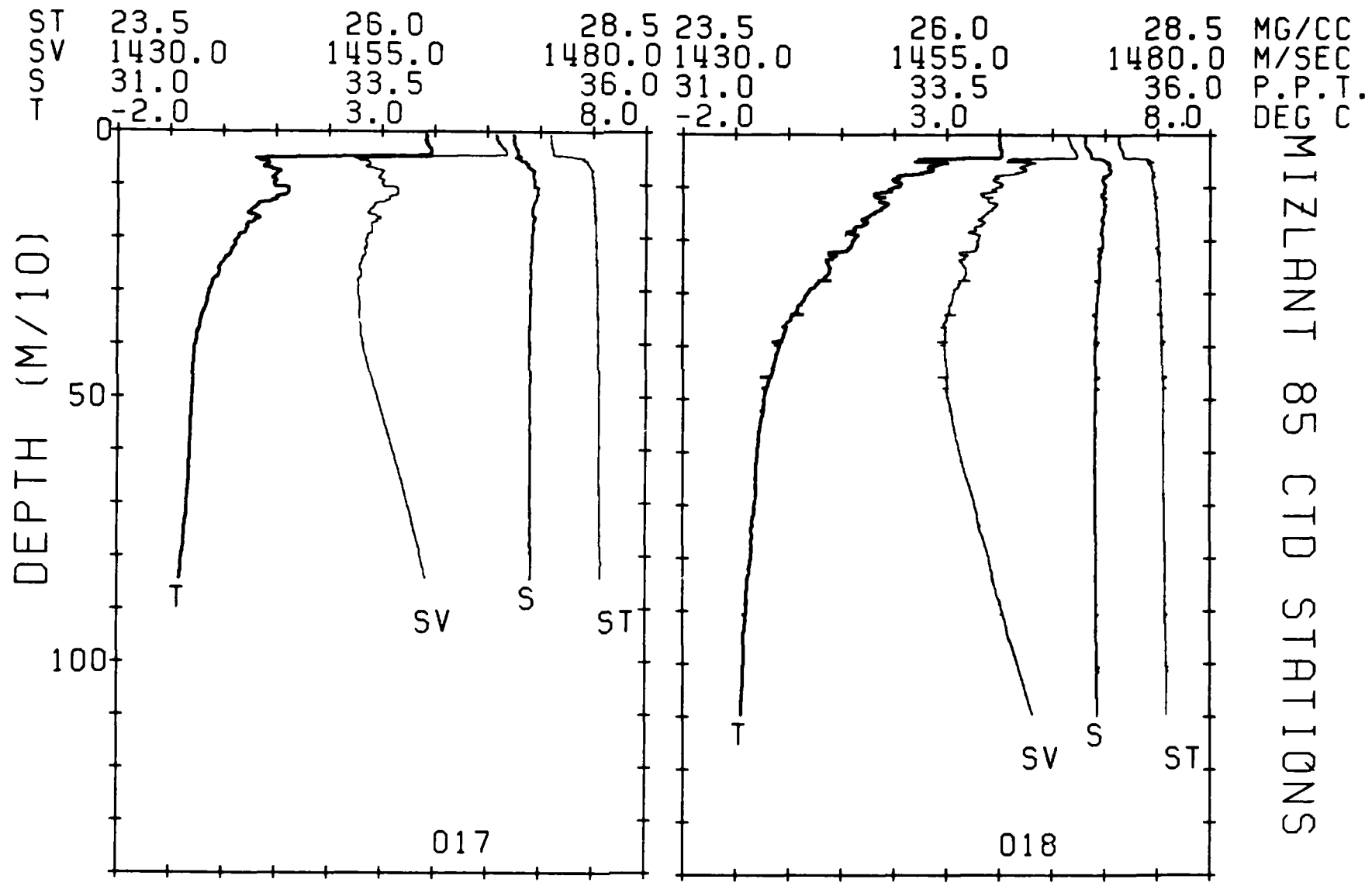
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
015
016
MIZLANT 85 CTD STATIONS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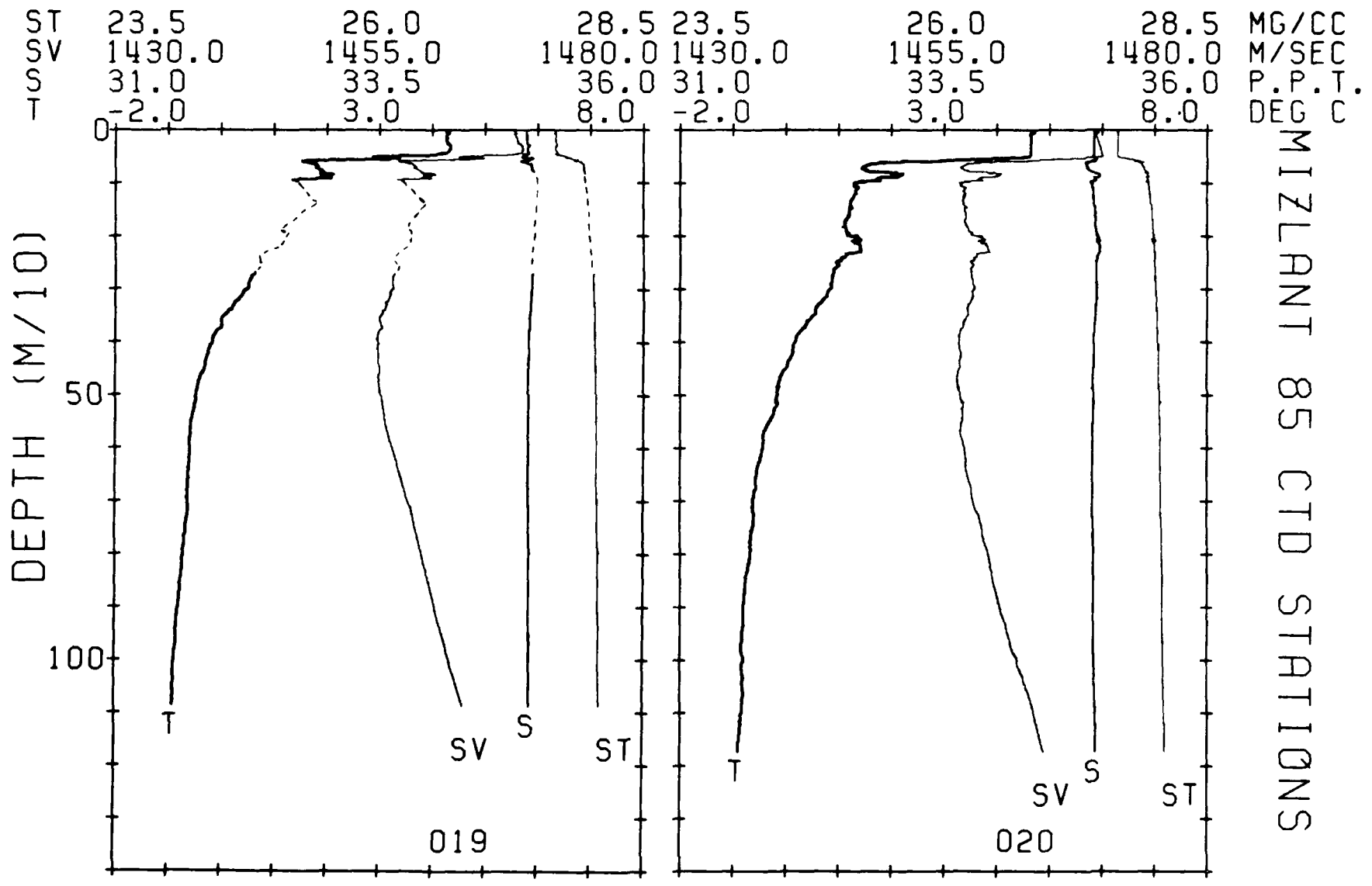
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
017
018
MIZLANT 85 CTD STATIONS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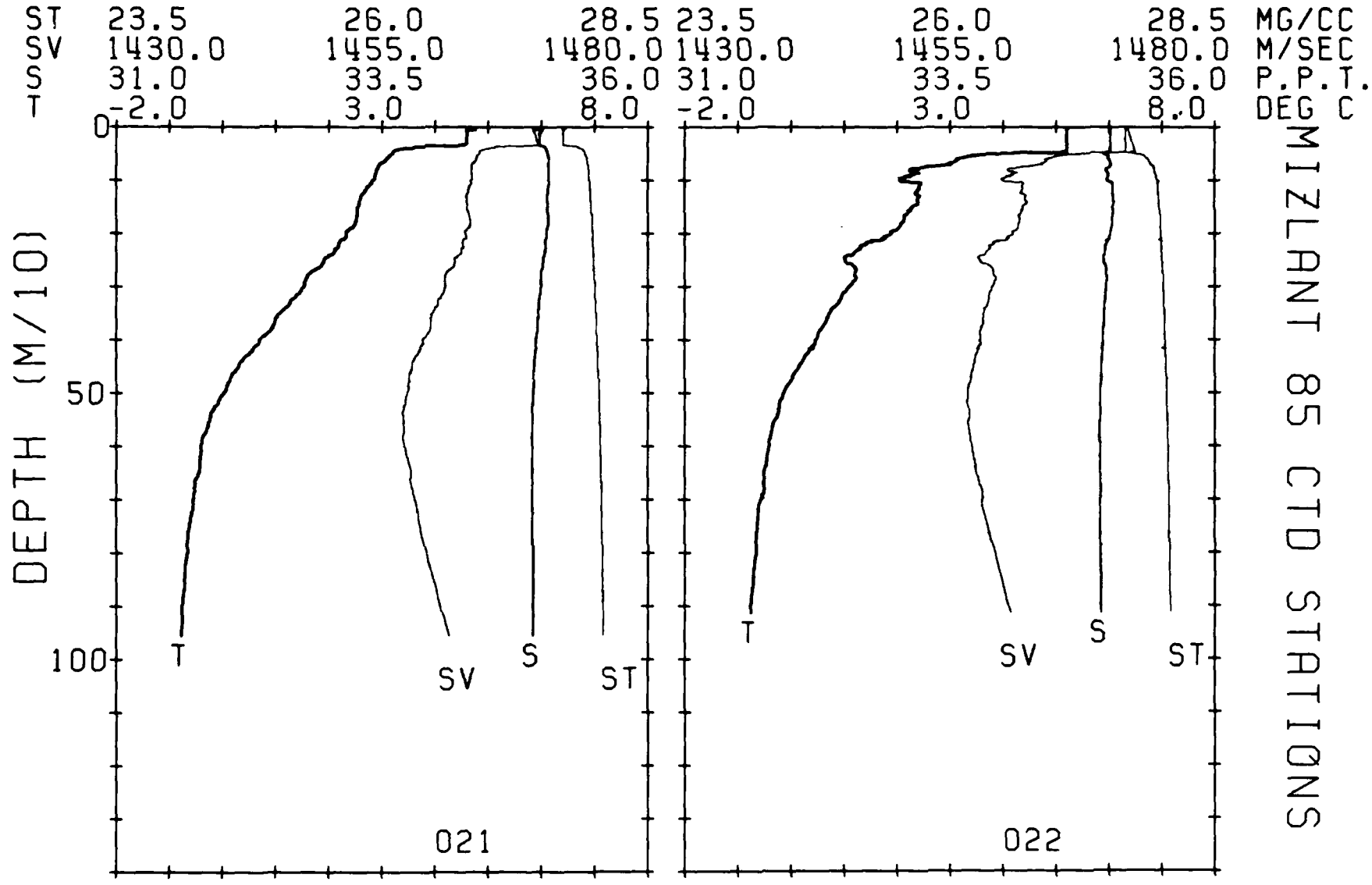
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
019
020
MIZLANT 85 CTD STATIONS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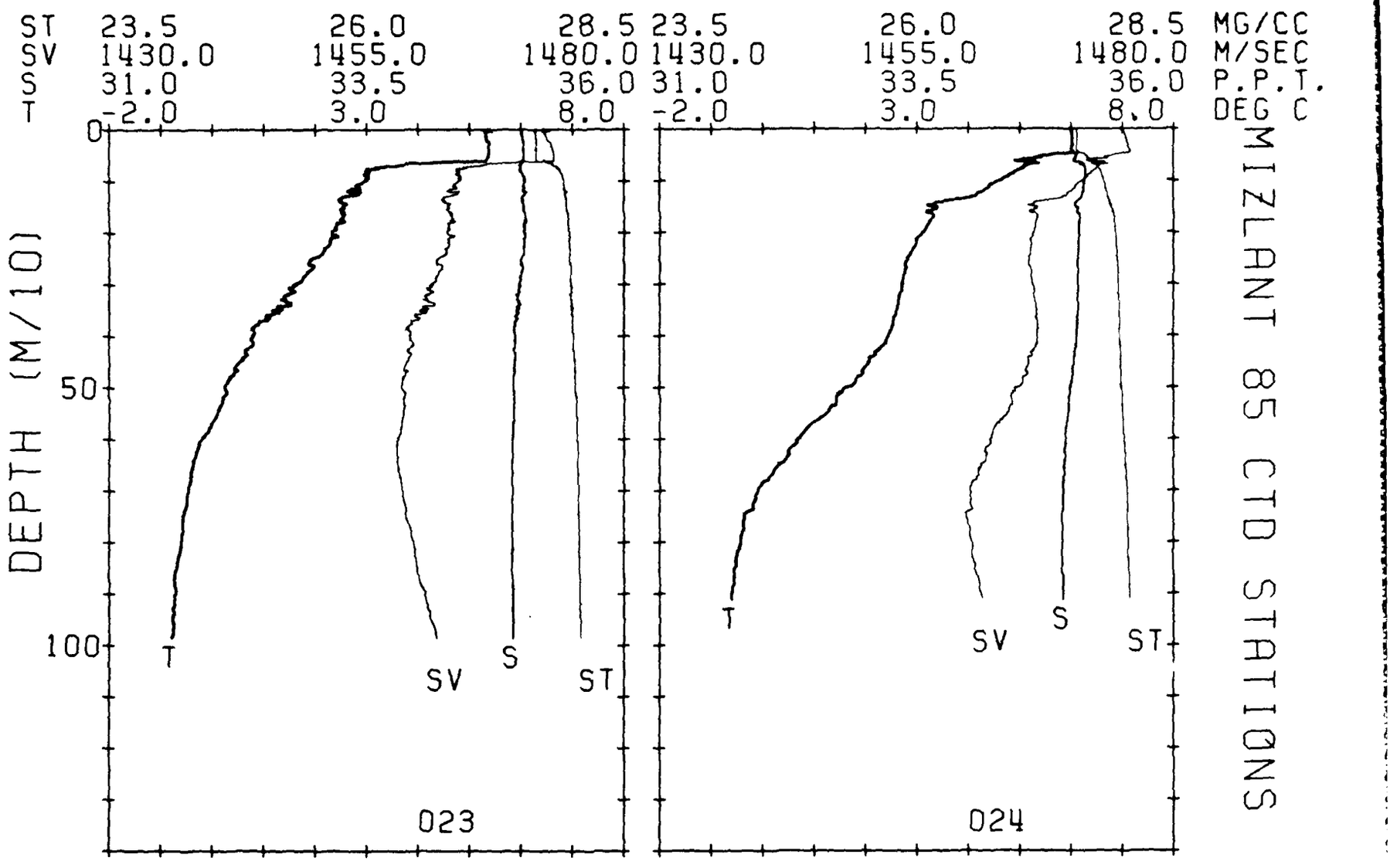
SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
021
022
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
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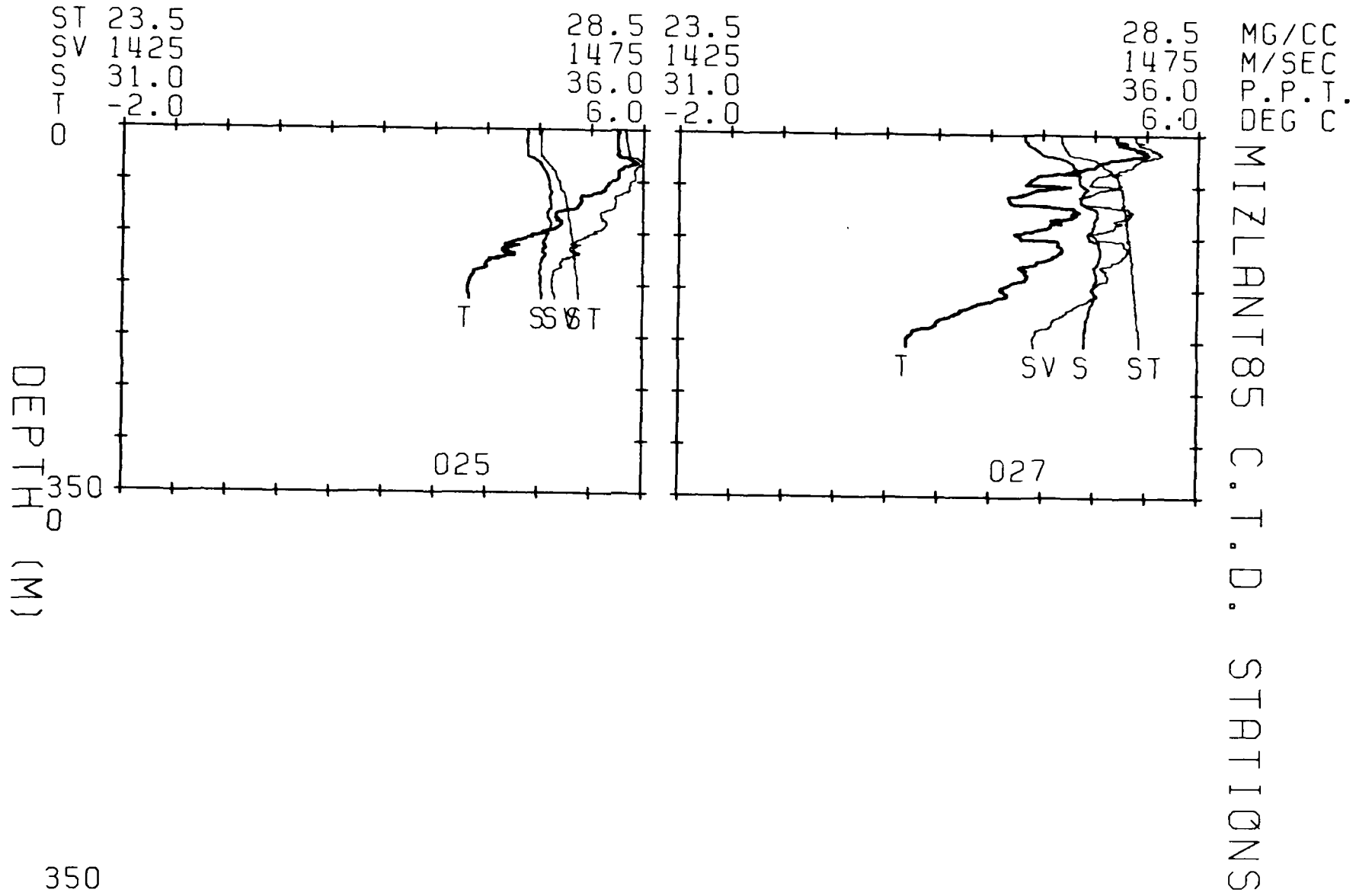
T
SV
S
ST
023
024
MIZLANT 85 CTD STATIONS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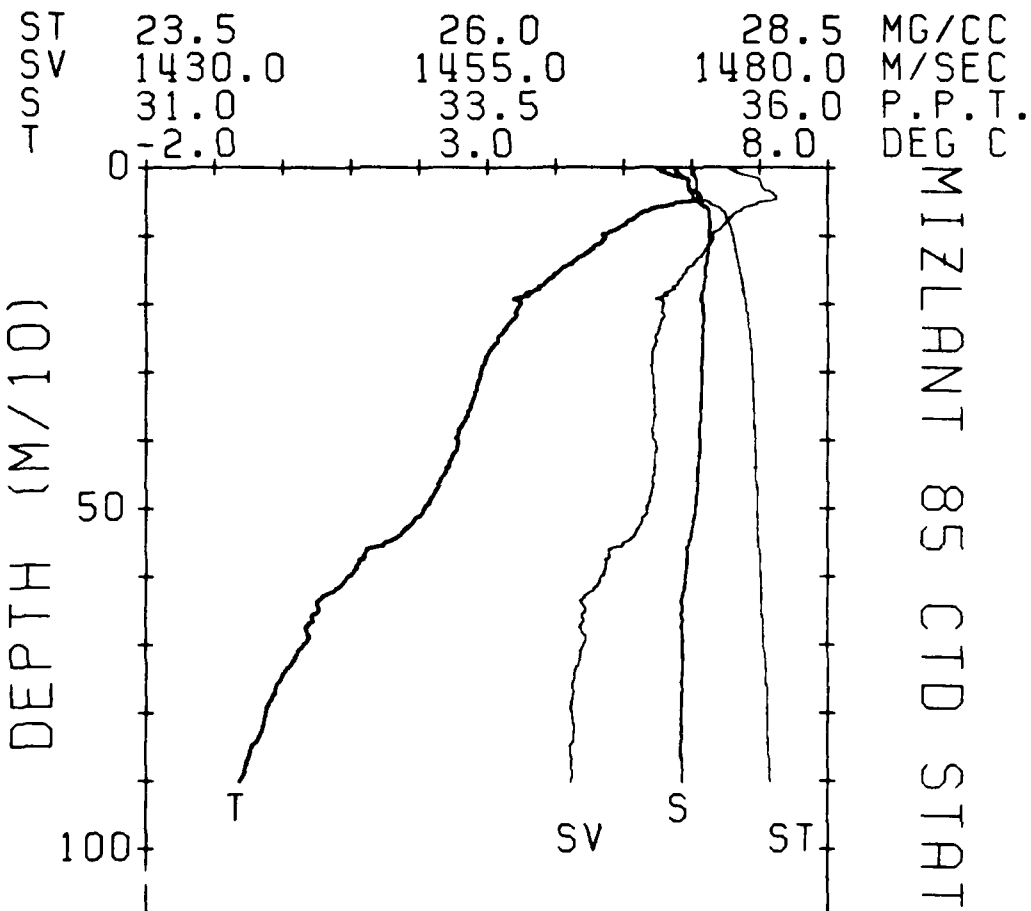
SV 1425
S 31.0
T -2.0
0
350
0
DEPTH (M)
28.5 23.5
1475 1425
36.0 31.0
6.0 -2.0
T
S
SV
ST
025
28.5
1475
36.0
6.0
MG/CC
M/SEC
P.P.T.
DEG C
T
SV
S
ST
027
MIZLANT85 C.T.D. STATIONS
350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S 31.0 33.5 36.0 P.P.T.
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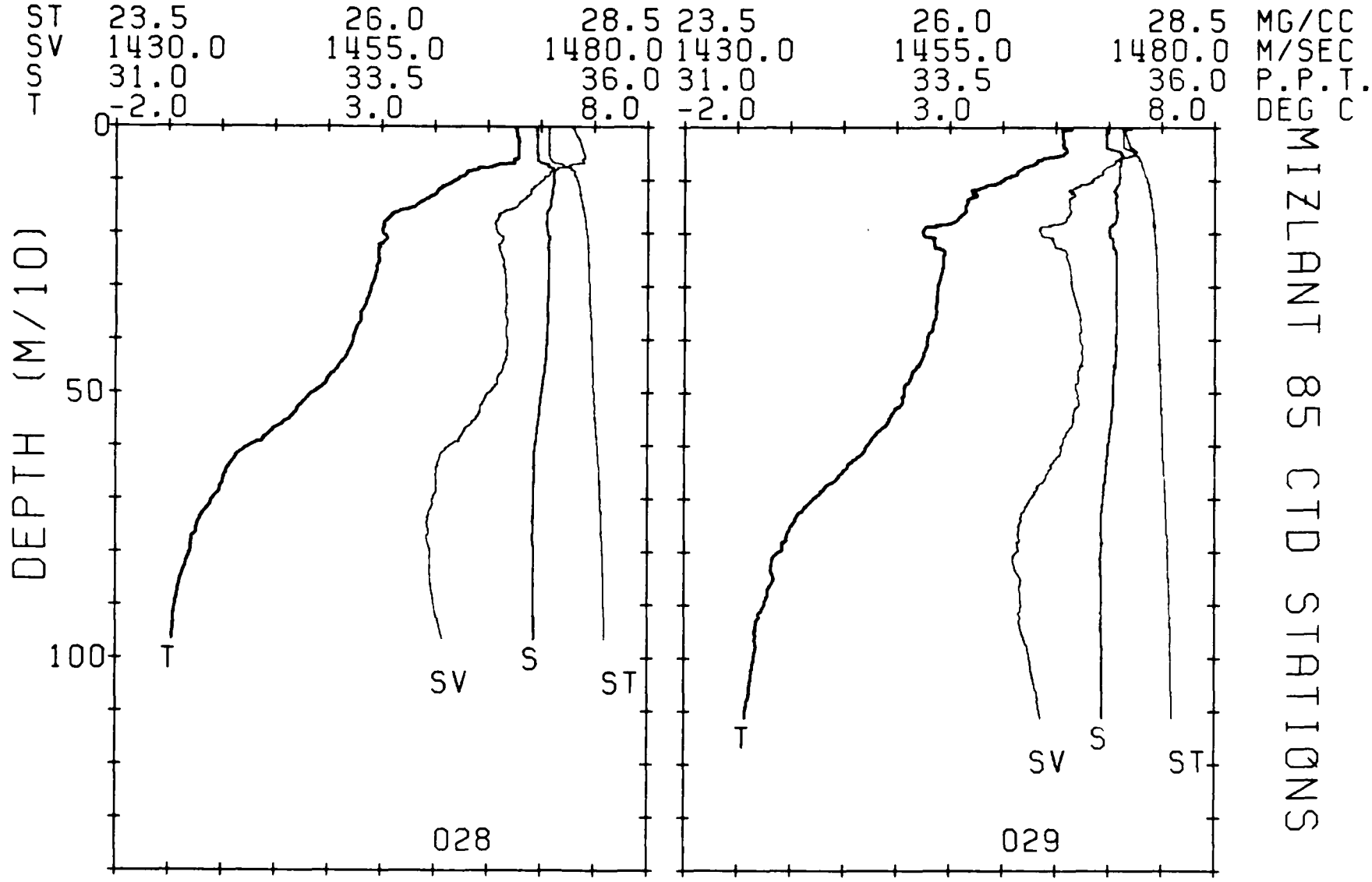
0
50
100
DEPTH (M/10)
T
SV
S
ST
026
MIZLANT 85 CTD STATIONS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S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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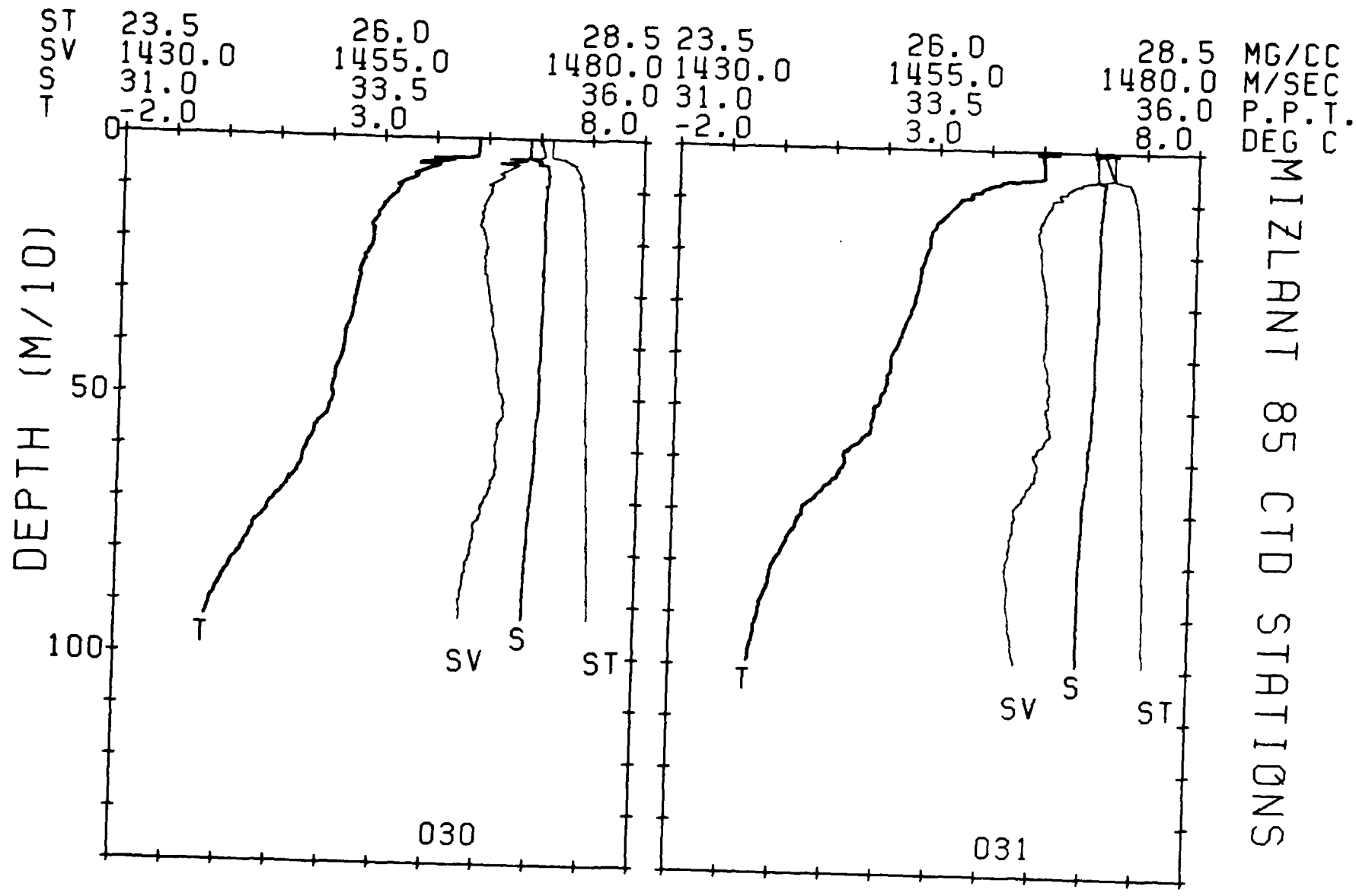
50
100
T
SV
S
ST
028
029
MIZLANT 85 CTD STATIONS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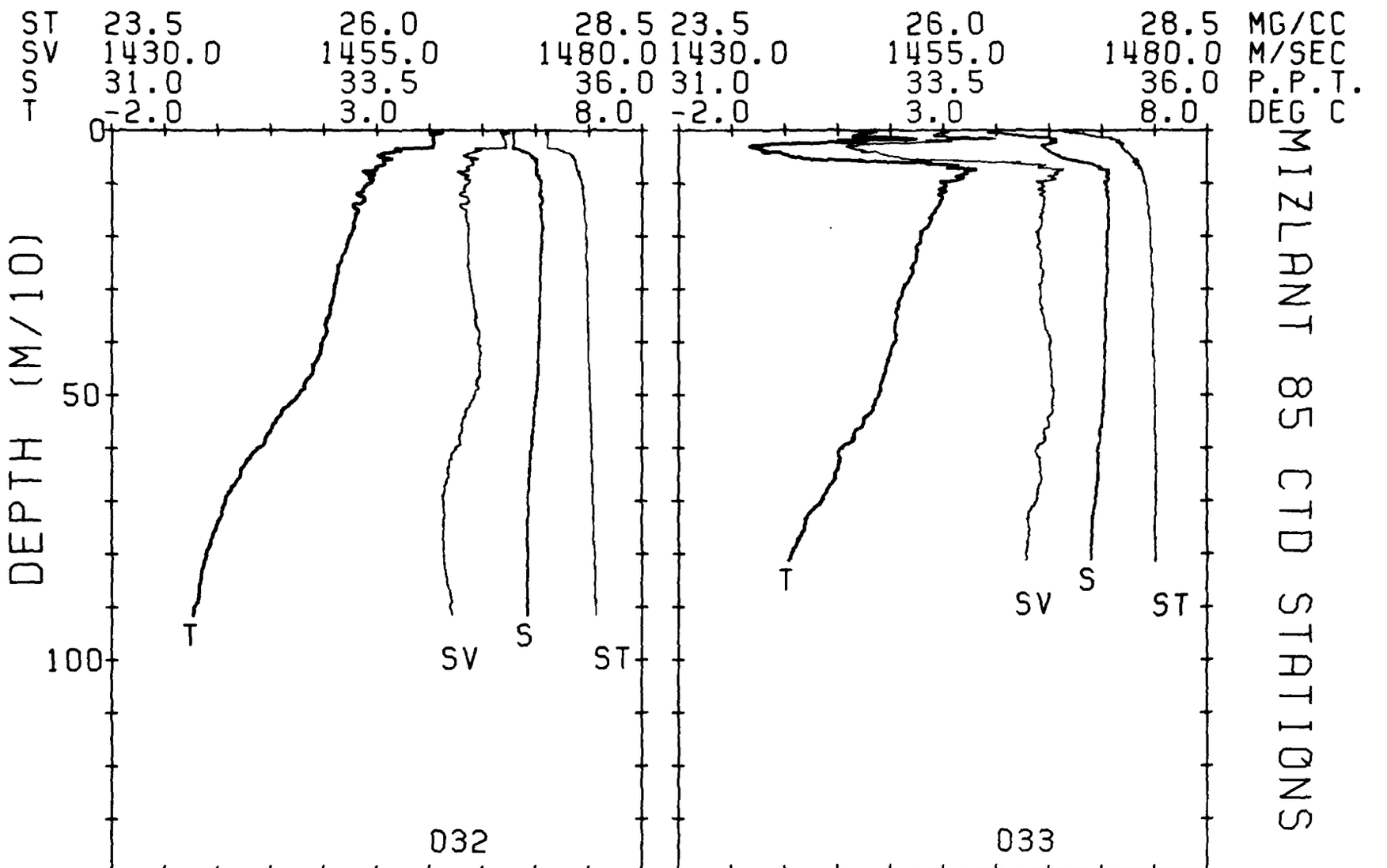
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
030
031
MIZLANT 85 CTD STATIONS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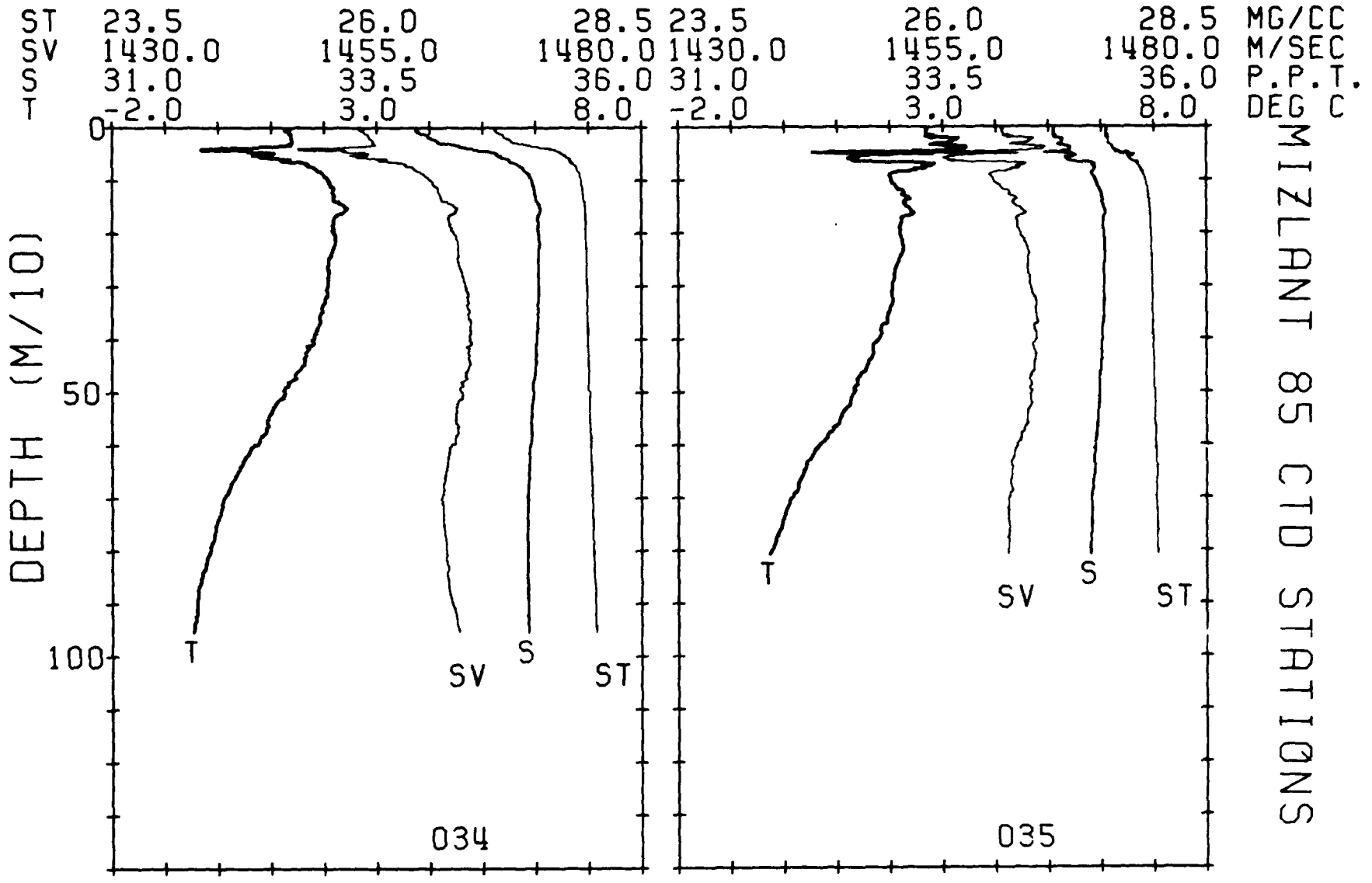
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
032
033
MIZLANT 85 CTD STATIONS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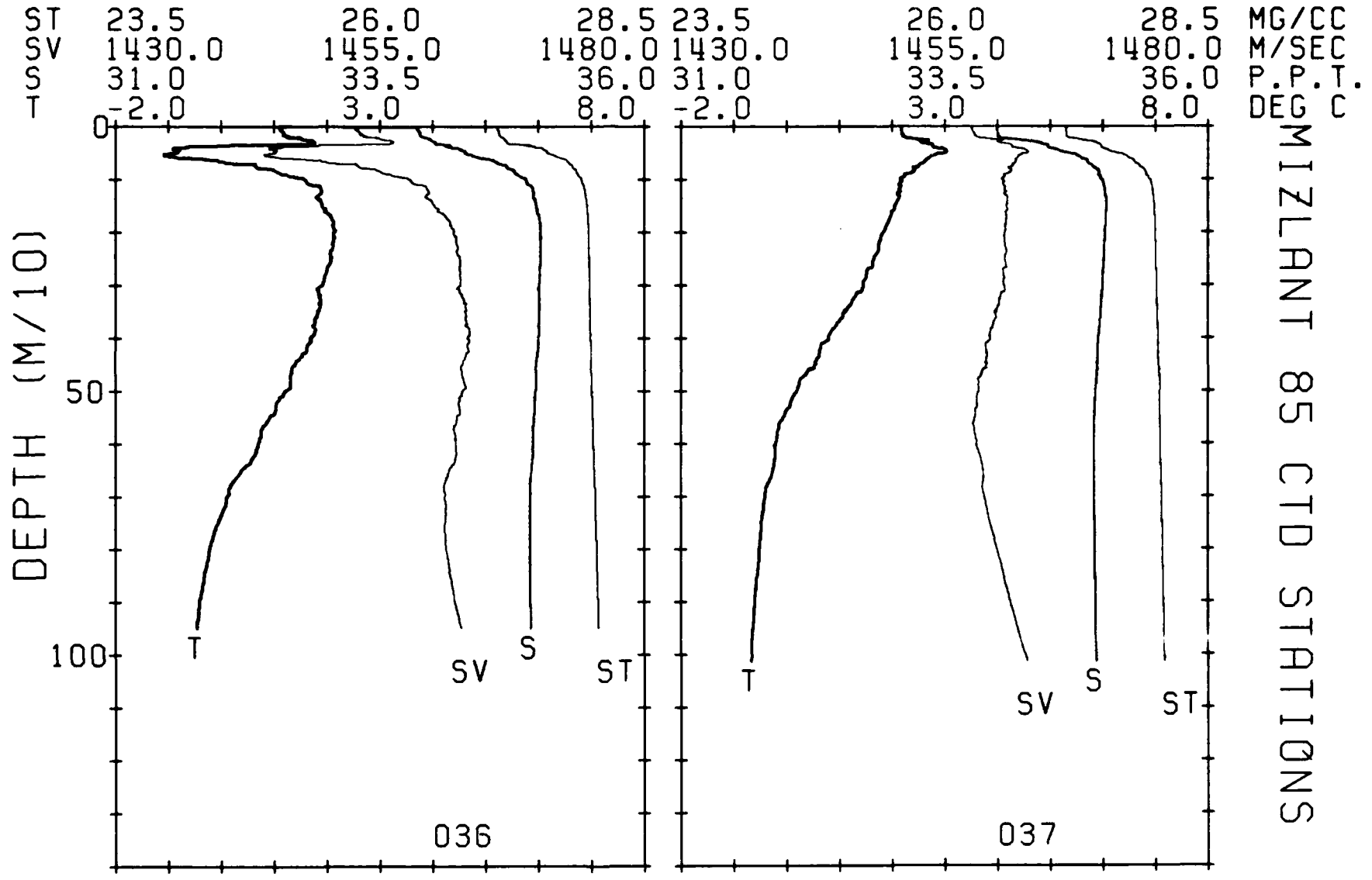
SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
034
035
MIZLANT 85 CTD STATIONS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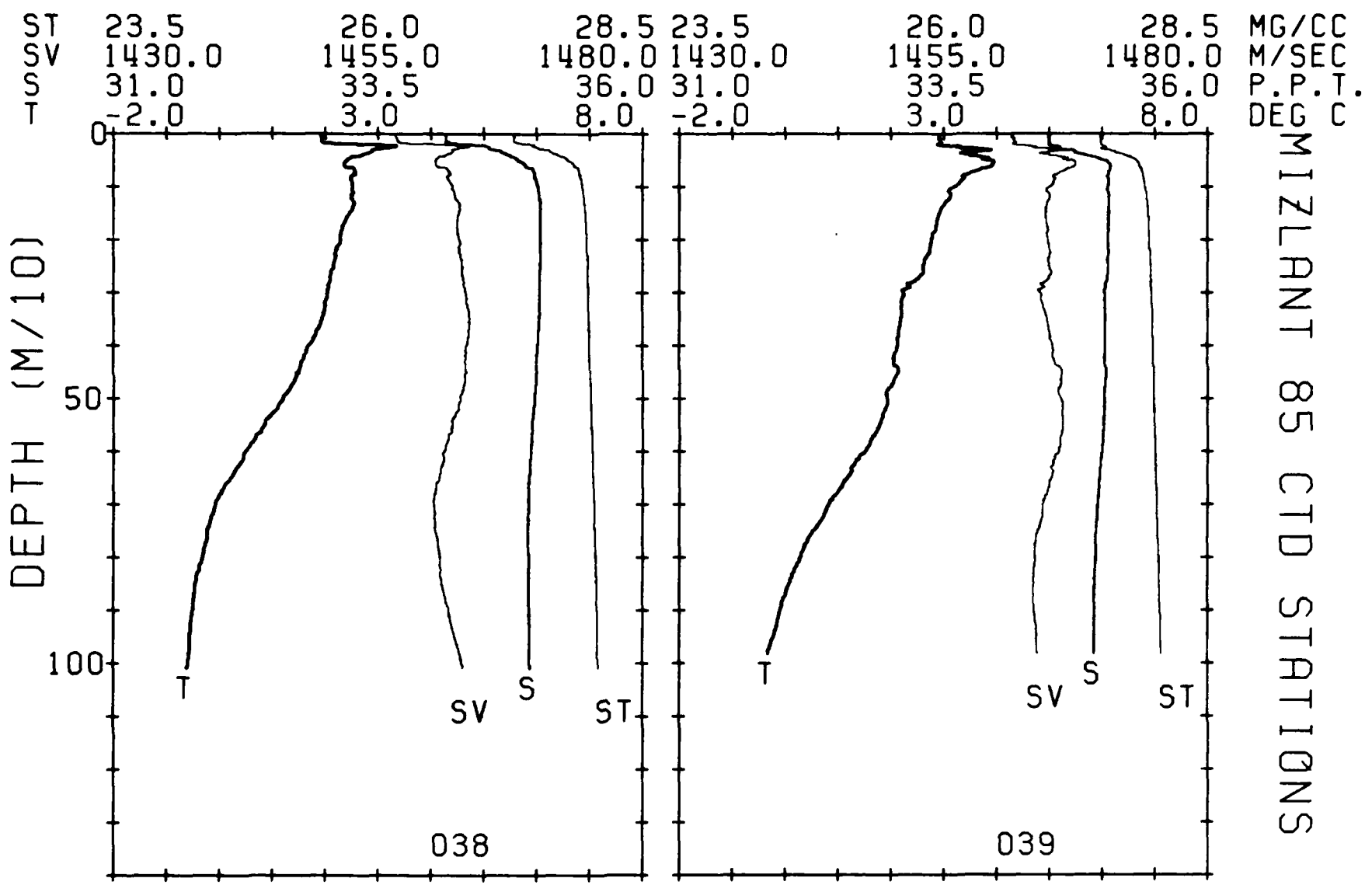
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
036
037
MIZLANT 85 CTD STATIONS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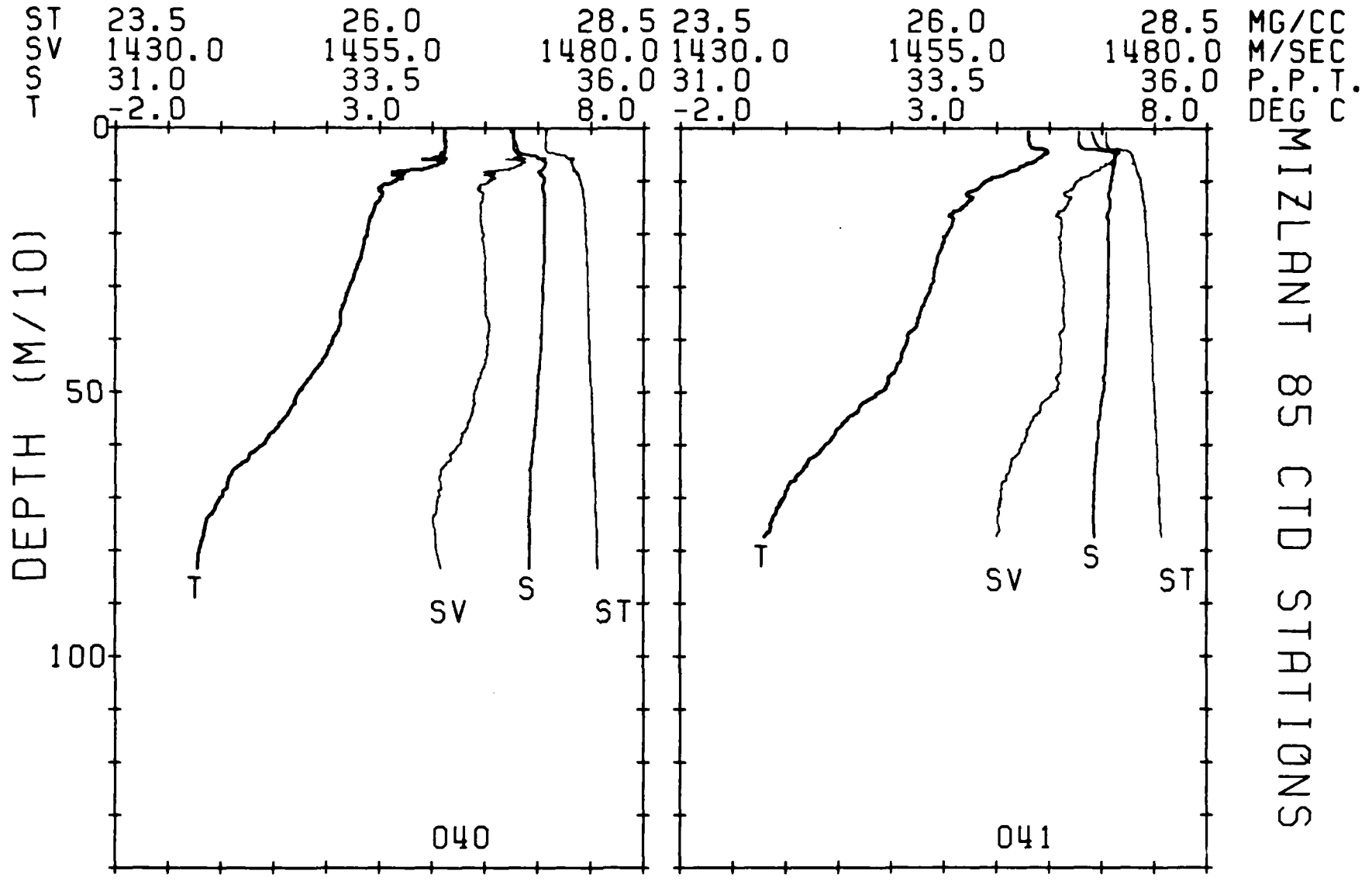
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
038
039
MIZLANT 85 CTD STATIONS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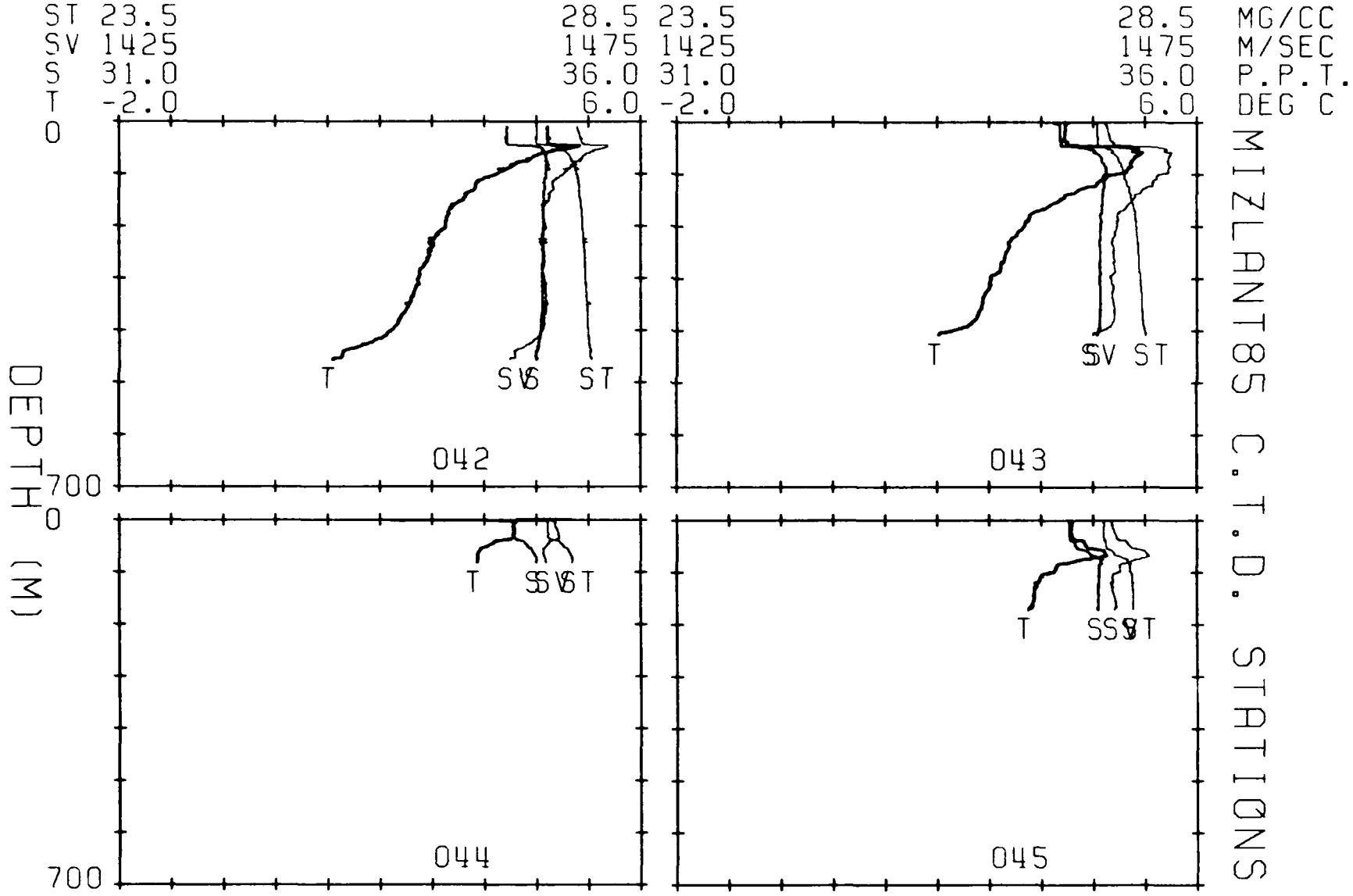
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
040
041
MIZLANT 85 CTD STATIONS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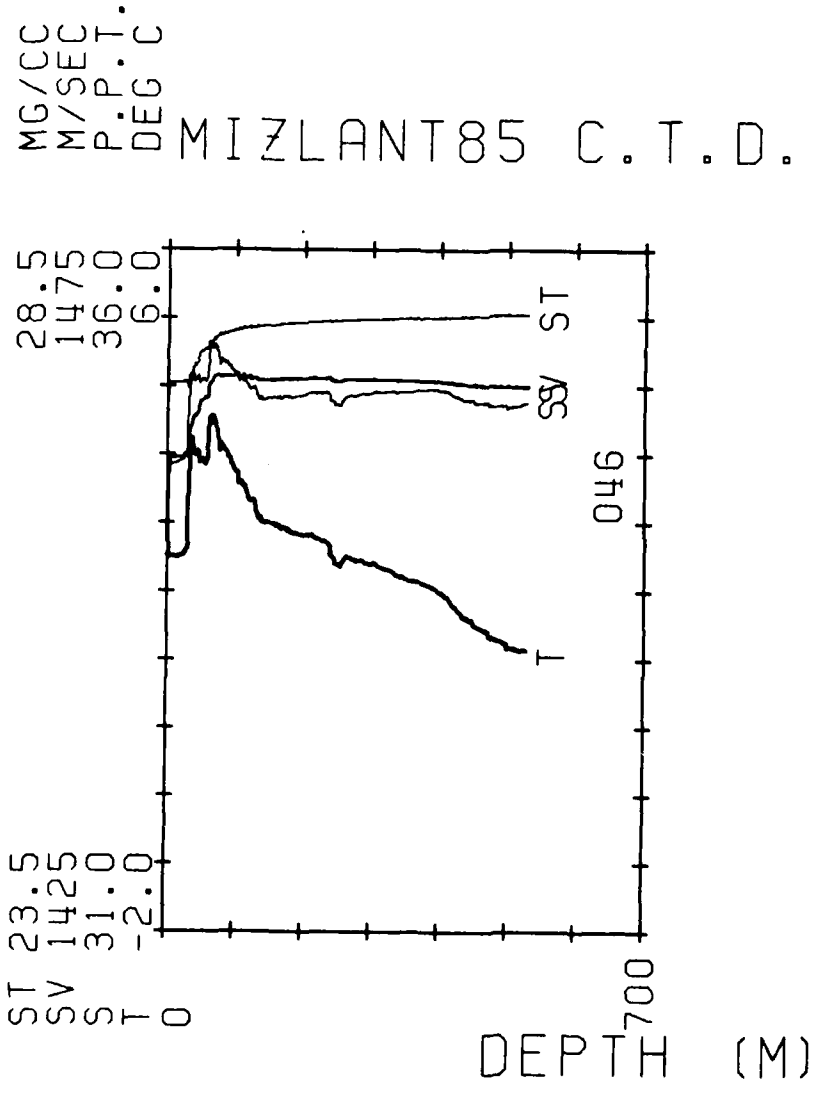
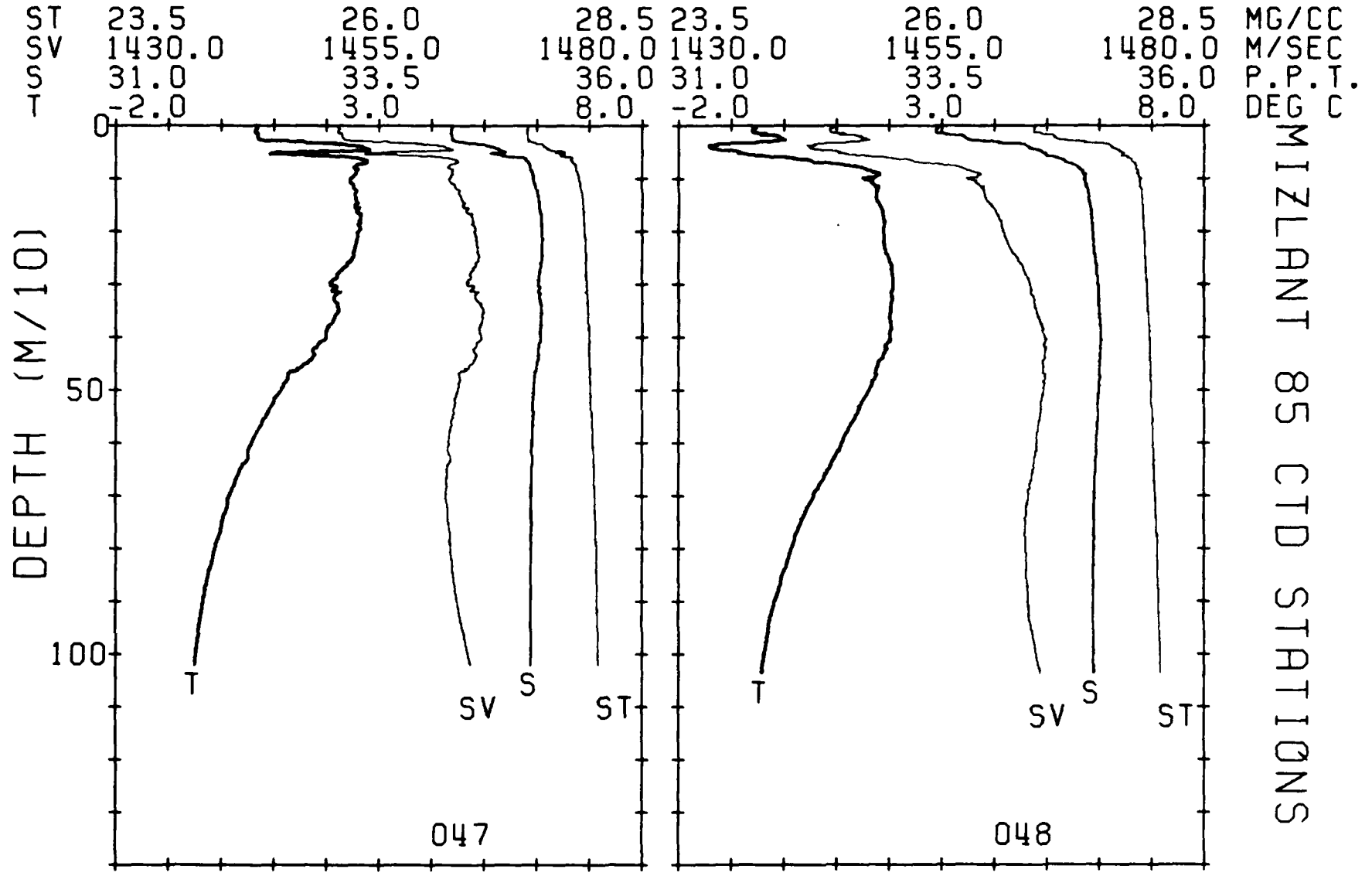
S 31.0 36.0 31.0 36.0 P.P.T.
T -2.0 6.0 -2.0 6.0 DEG C
0
700
DEPTH (M)
042
043
044
045
T
S
V
T
MIZLANT85 C.T.D. STATIONS

MIZLANT85 C.T.D. STATIONS

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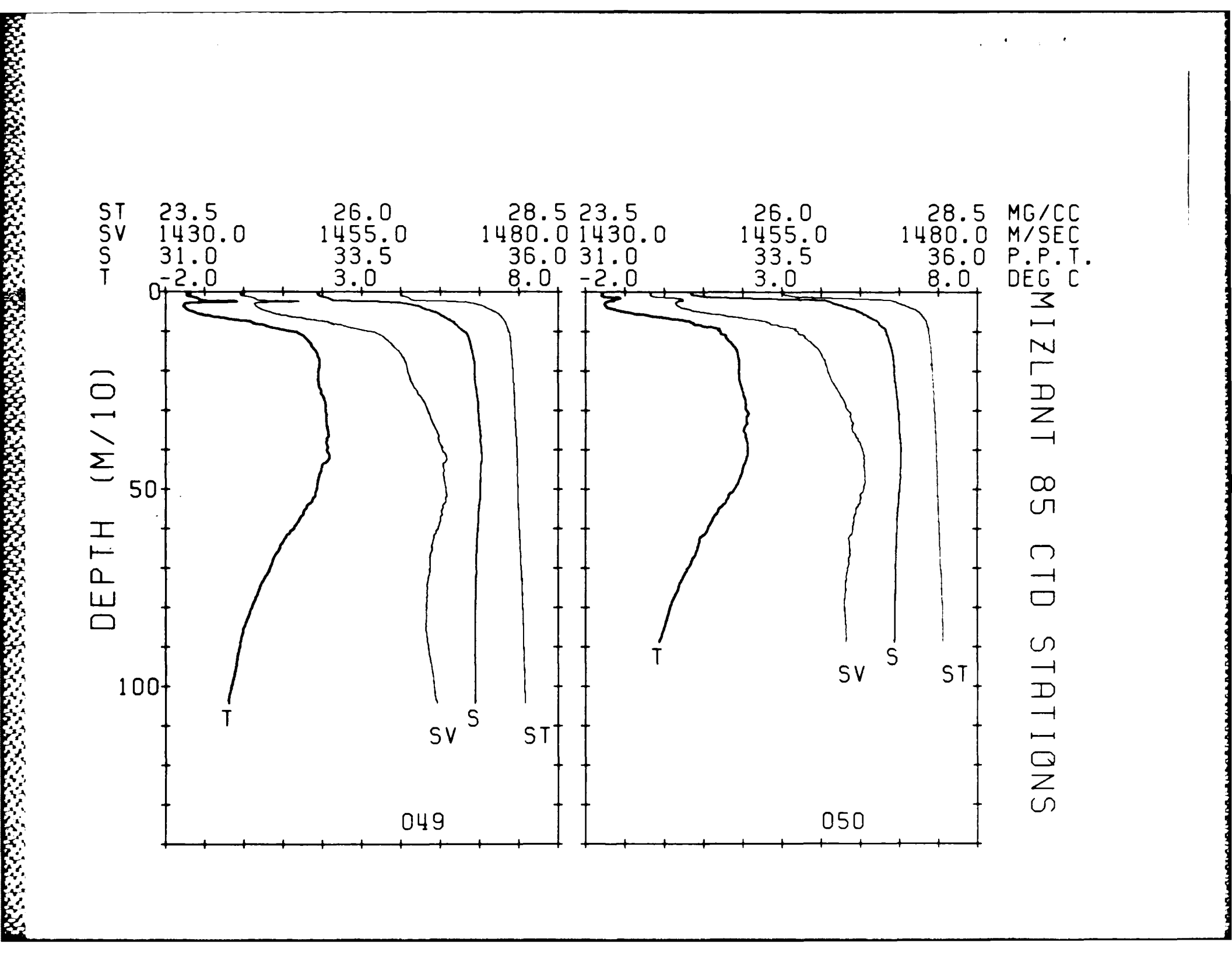
SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
047
048
MIZLANT 85 CTD STATIONS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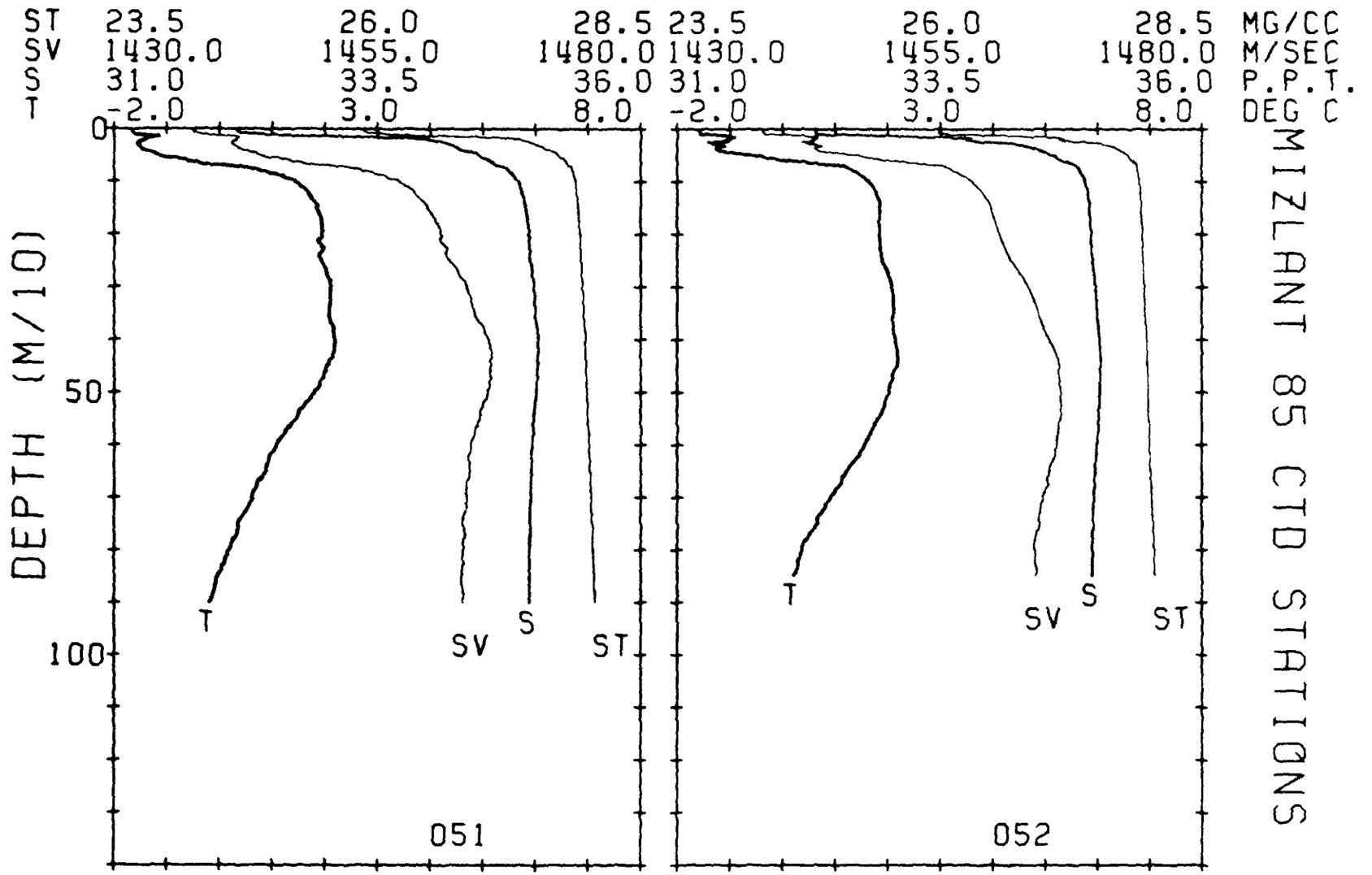
SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
049
050
MIZLANT 85 CTD STATIONS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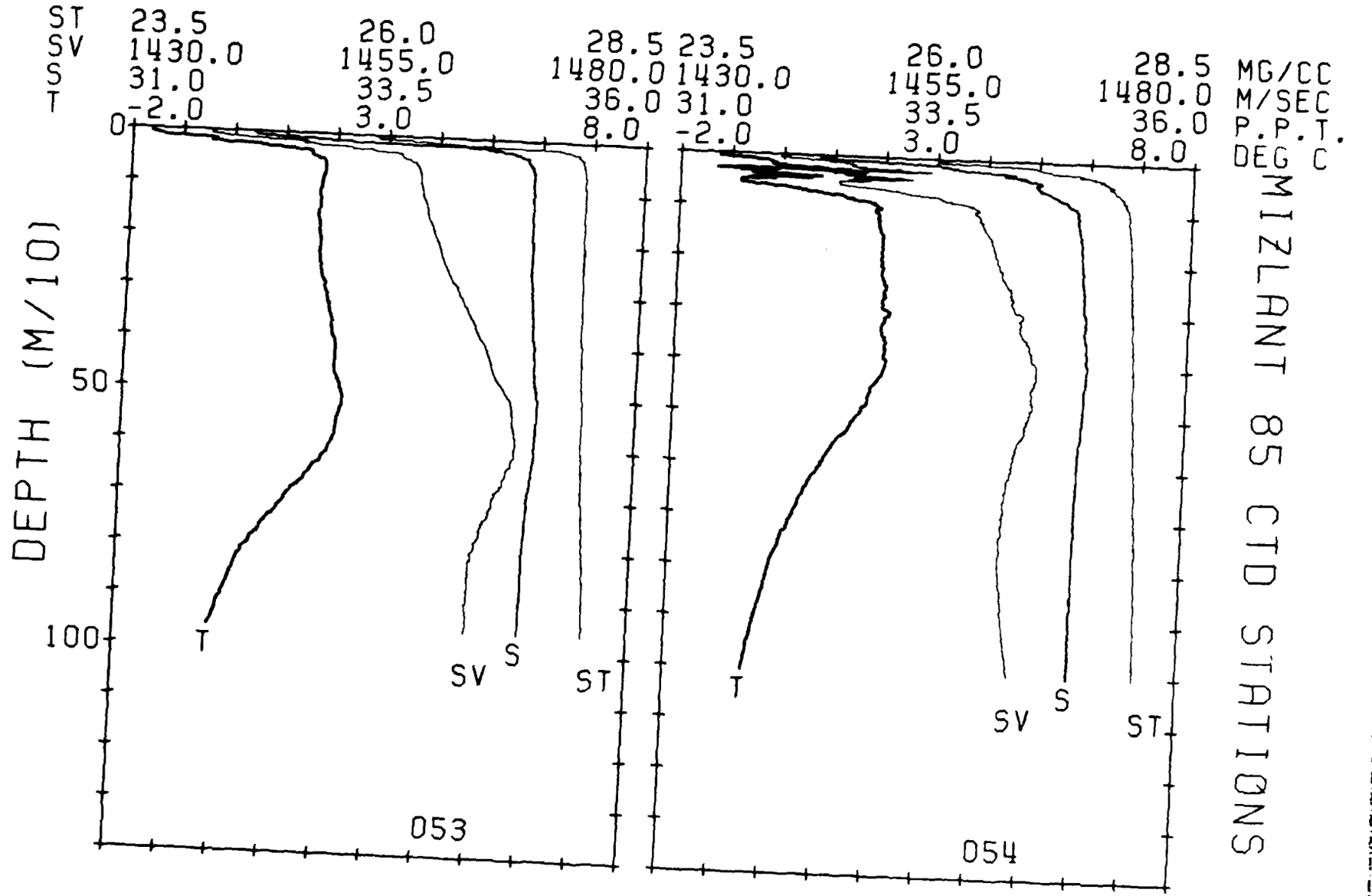
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
051
052
MIZLANT 85 CTD STATIONS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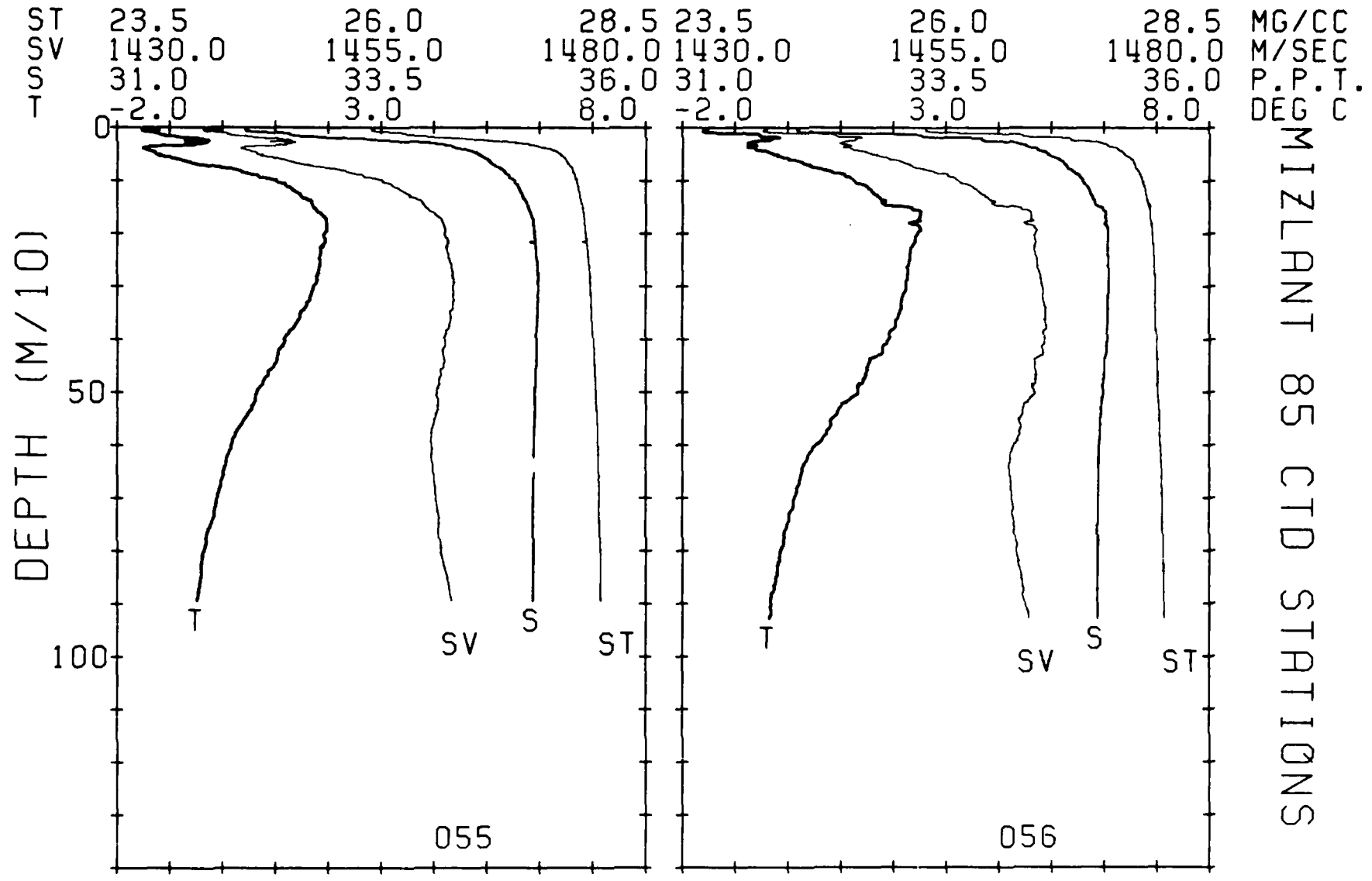
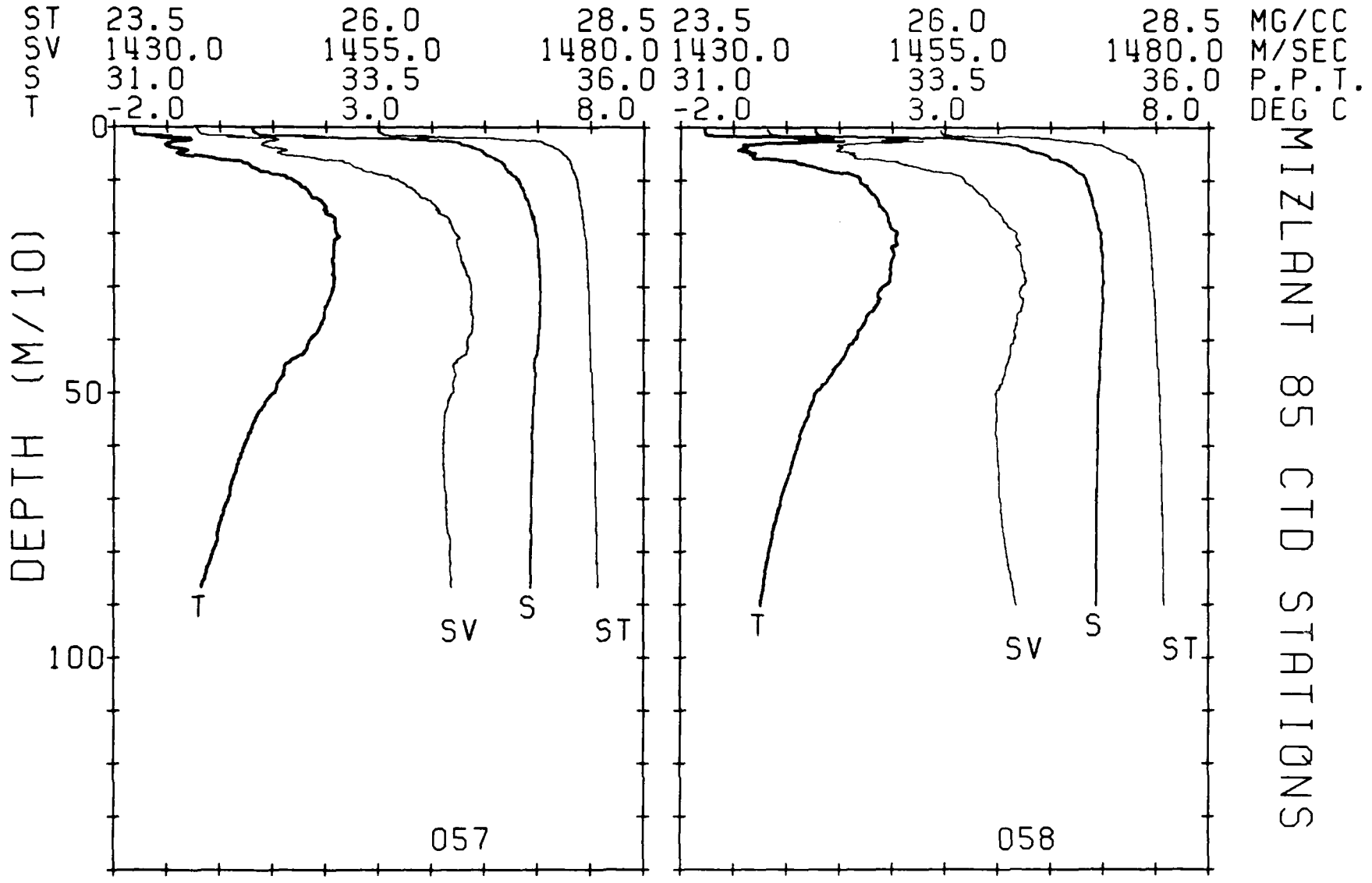
SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
053
054
MIZLANT 85 CTD STATIONS


ST 23.5 26.0 28.5 23.5 26.0 28.5 MG/CC
SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
055
056
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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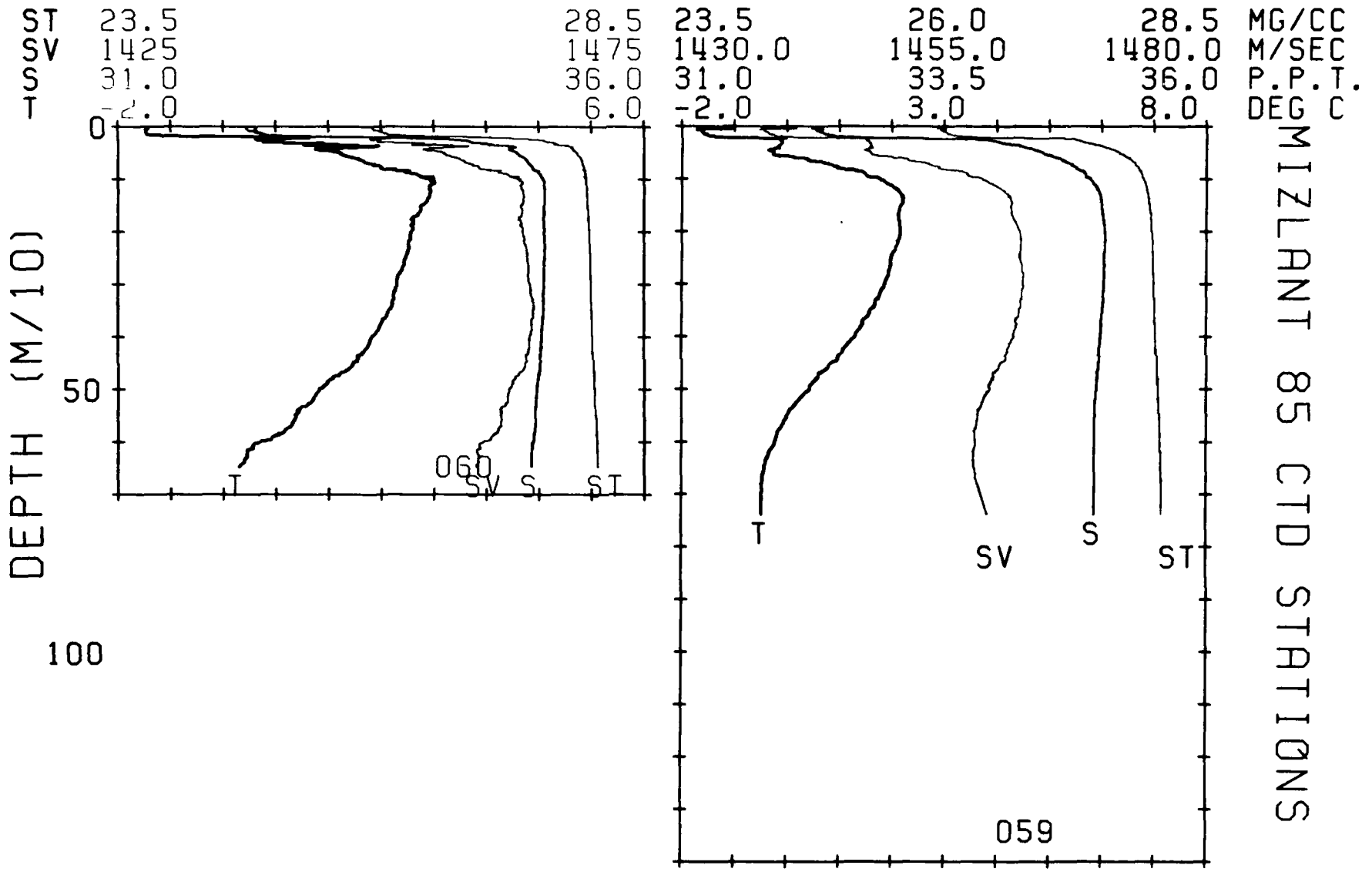
100
T
SV
S
ST
057
058
MIZLANT 85 CTD STATIONS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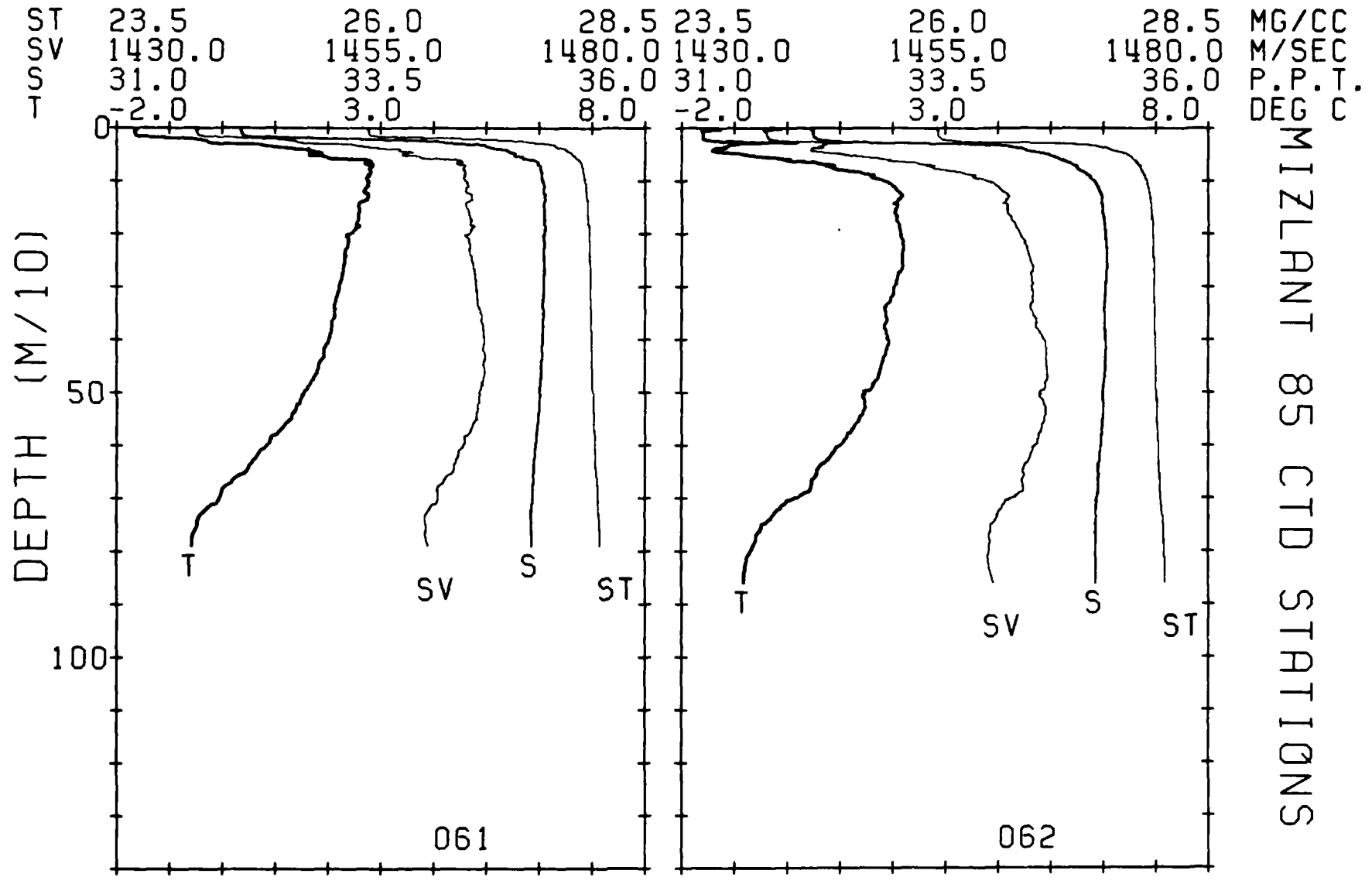
SV 1425 1475
S 31.0 36.0
T -2.0 6.0
0
50
100
DEPTH (M/10)
T
SV
S
ST
060
23.5 26.0 28.5 MG/CC
1430.0 1455.0 1480.0 M/SEC
31.0 33.5 36.0 P.P.T.
-2.0 3.0 8.0 DEG C
T
SV
S
ST
059
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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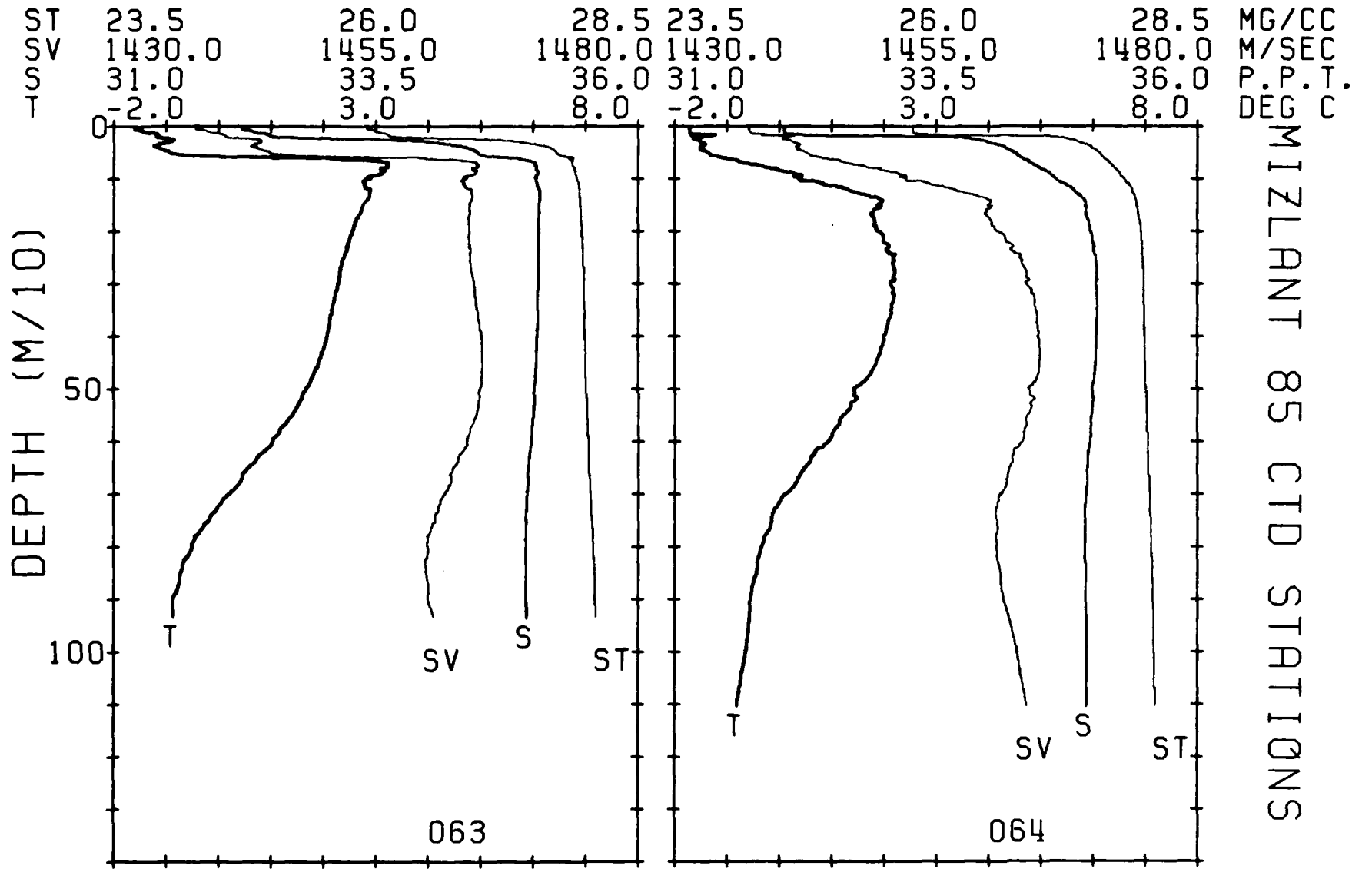
SV
S
ST
061
062
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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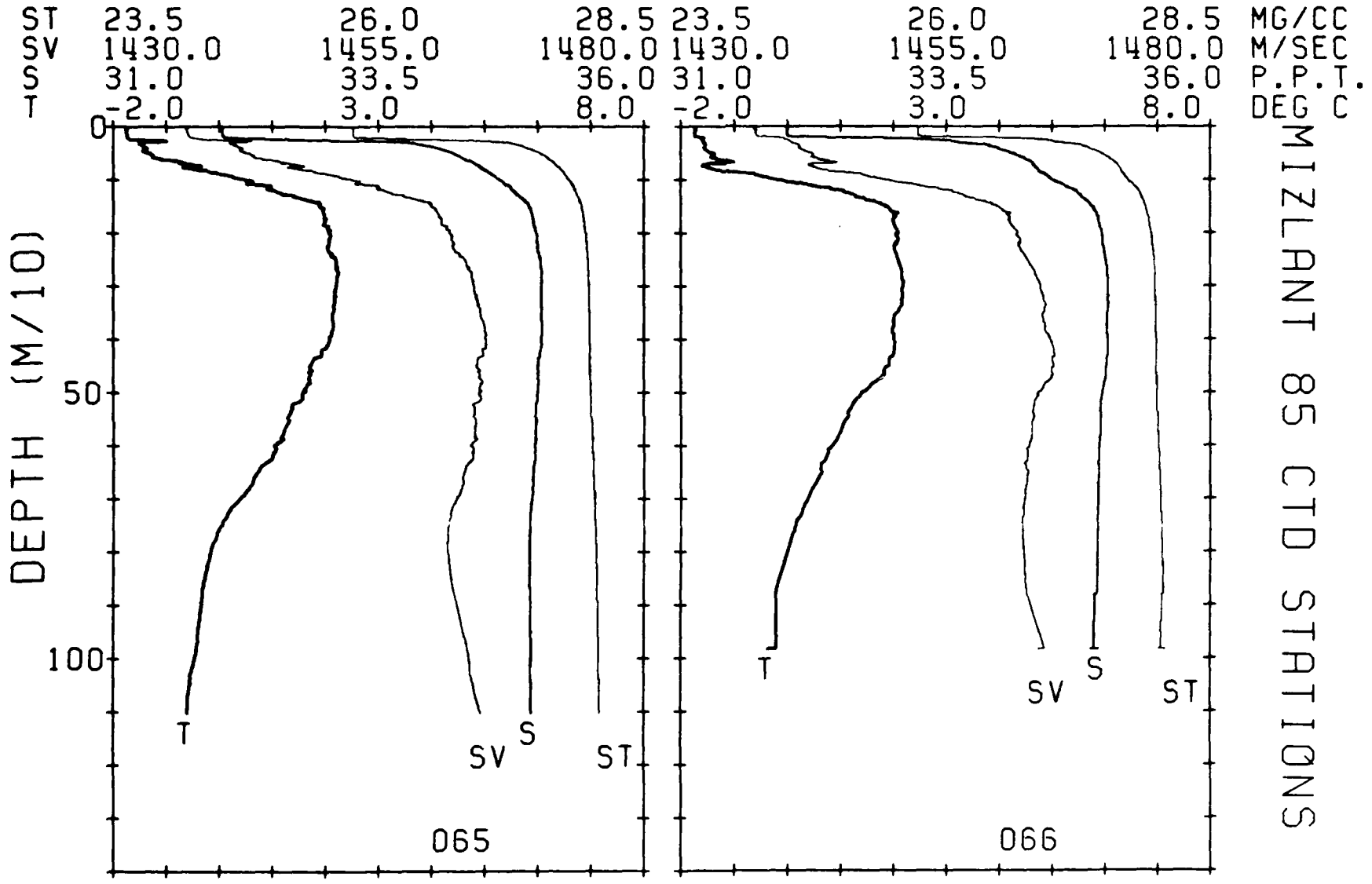
S
ST
063
064
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
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S
ST
065
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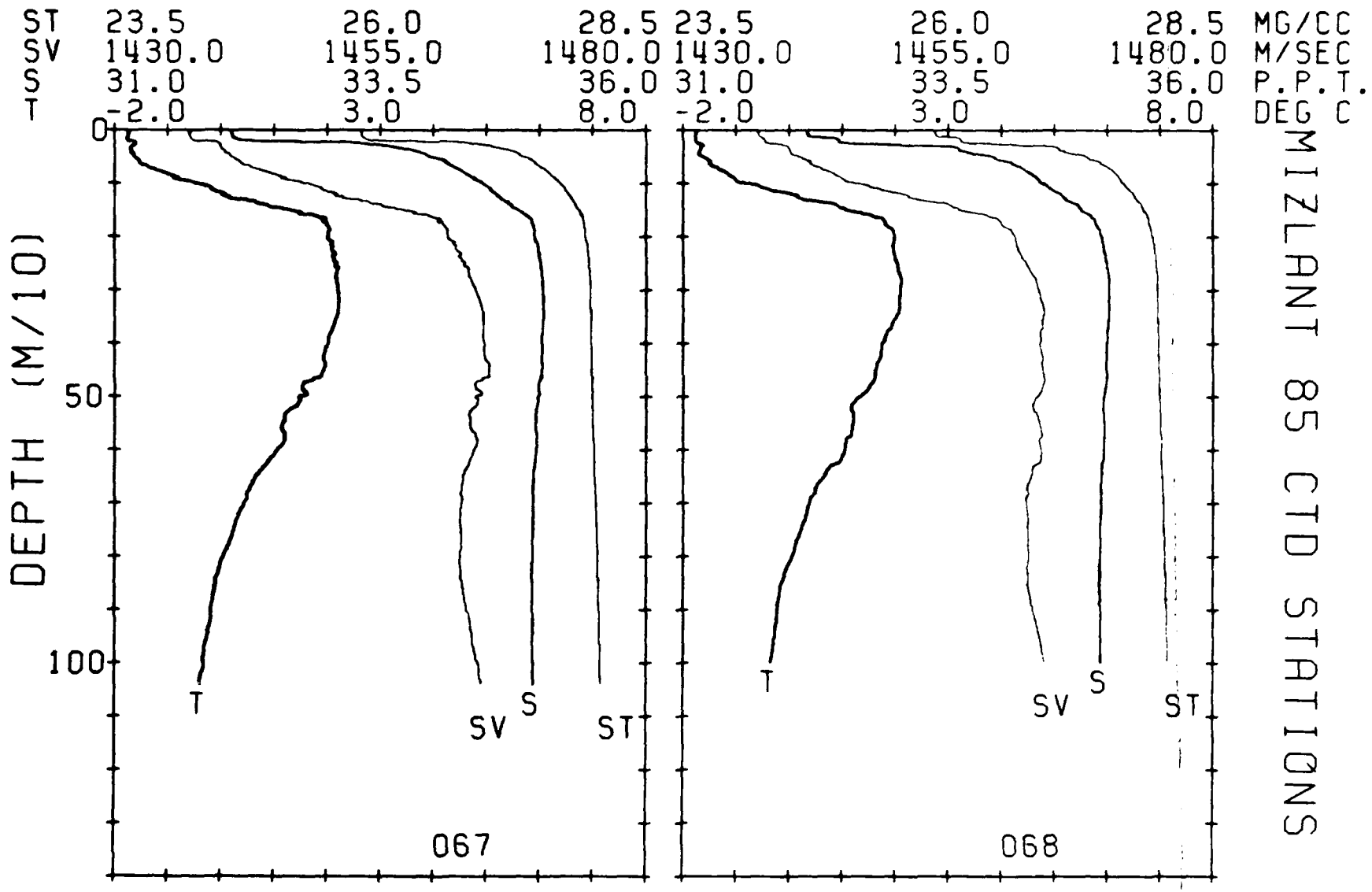
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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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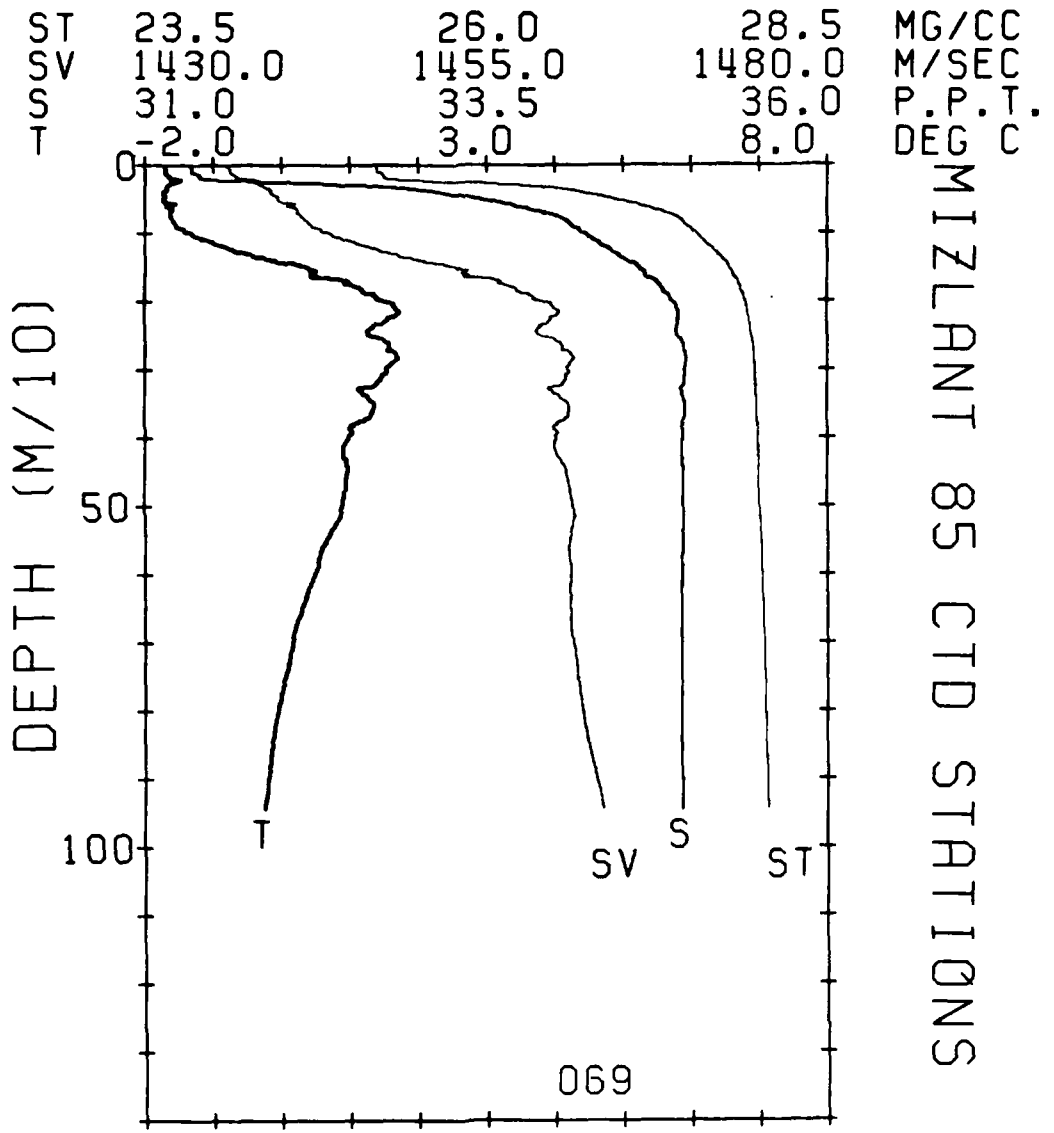
T
SV
S
ST
067
068
MIZLANT 85 CTD STATIONS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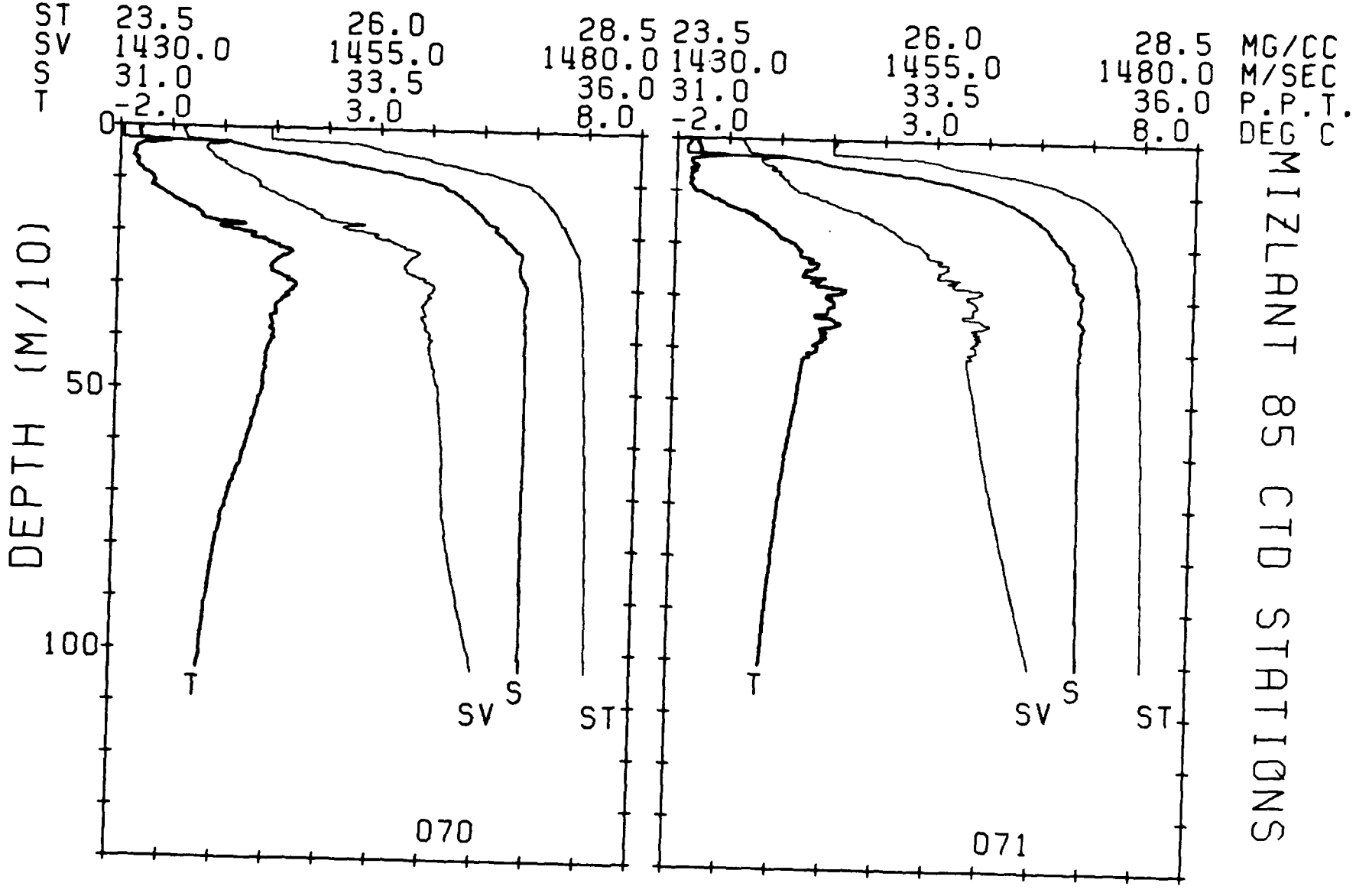
0
50
100
DEPTH (M/10)
T
SV
S
ST
069
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
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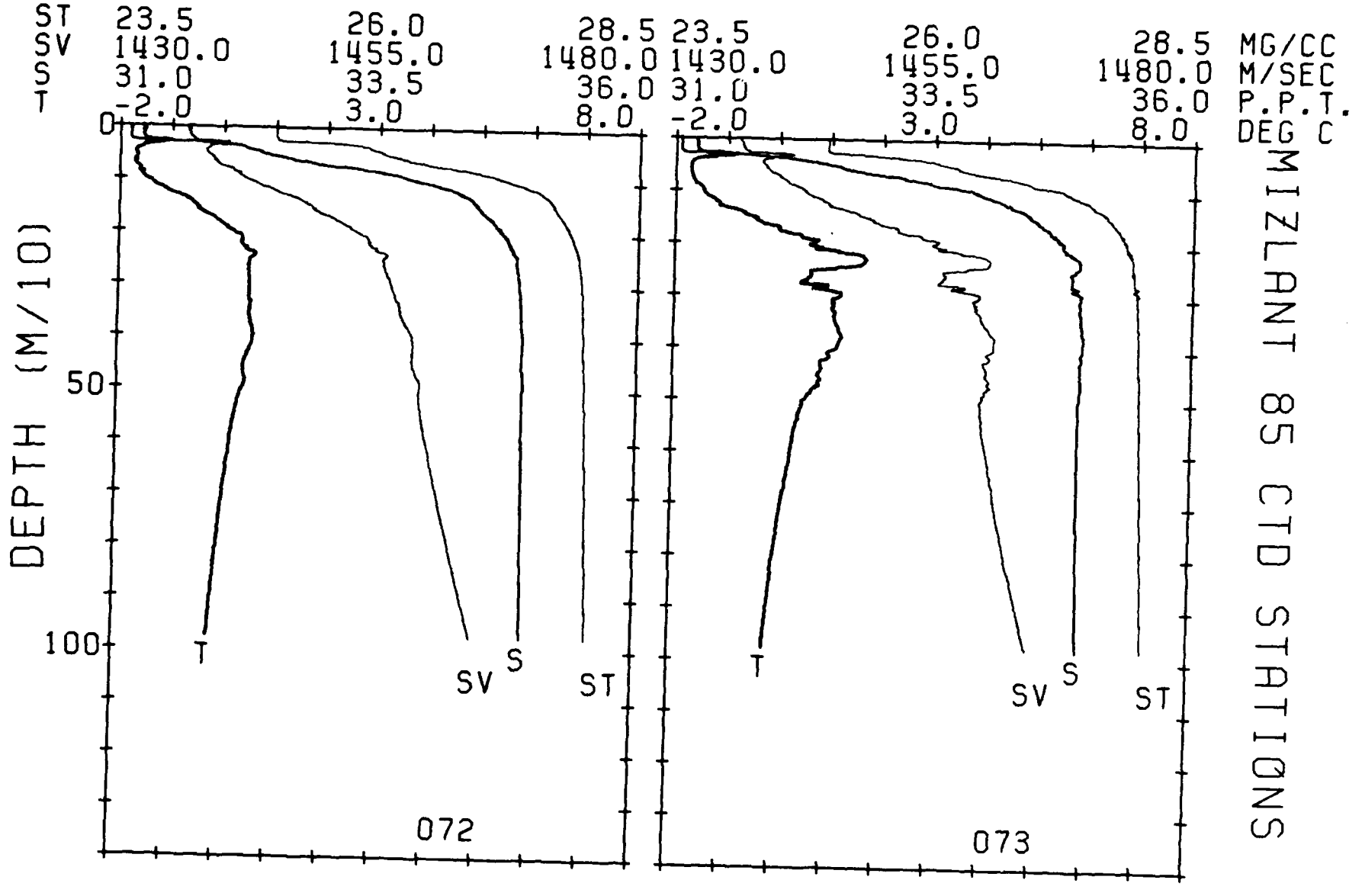
100
T
SV
S
ST
070
071
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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50
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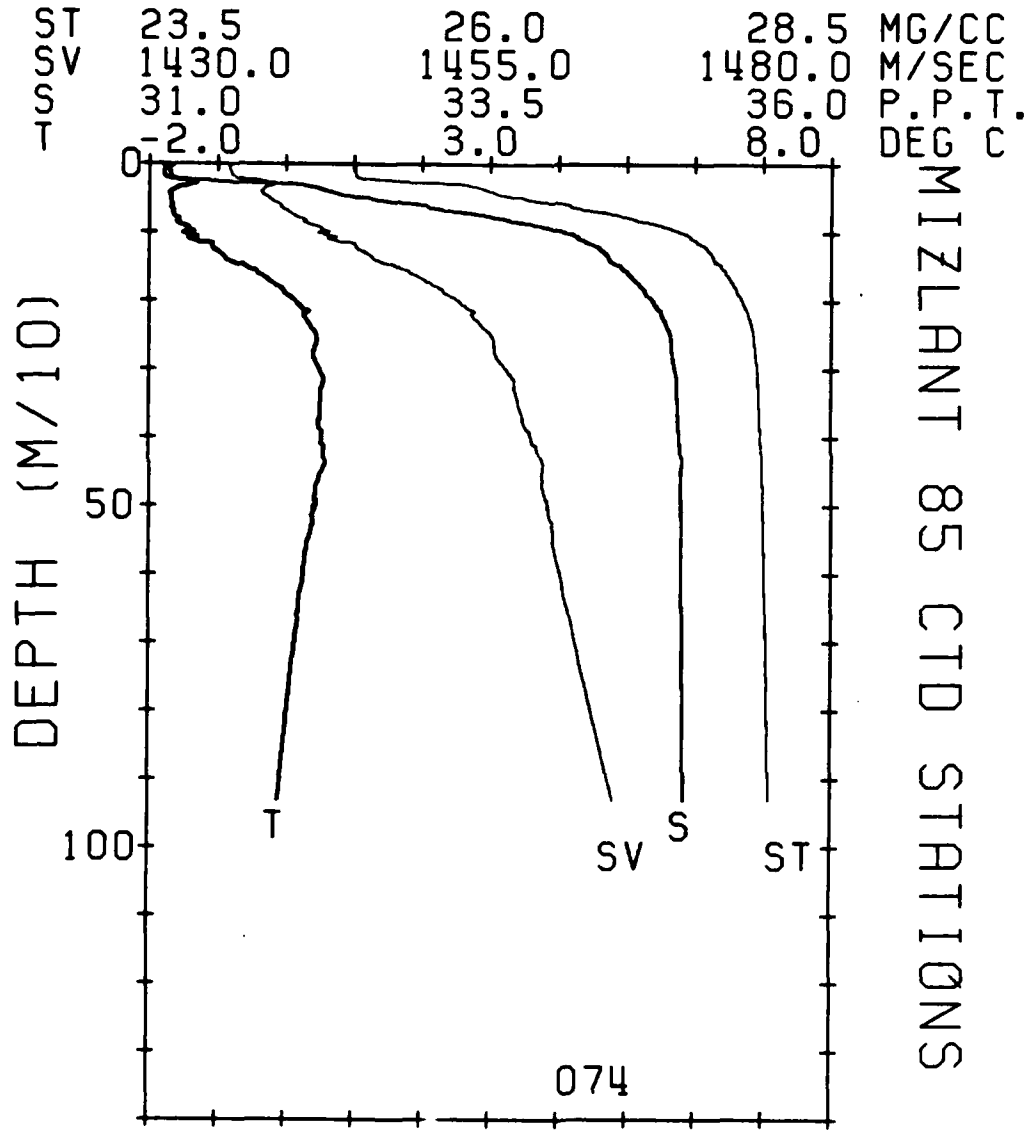
SV
S
ST
072
073
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 DEG C
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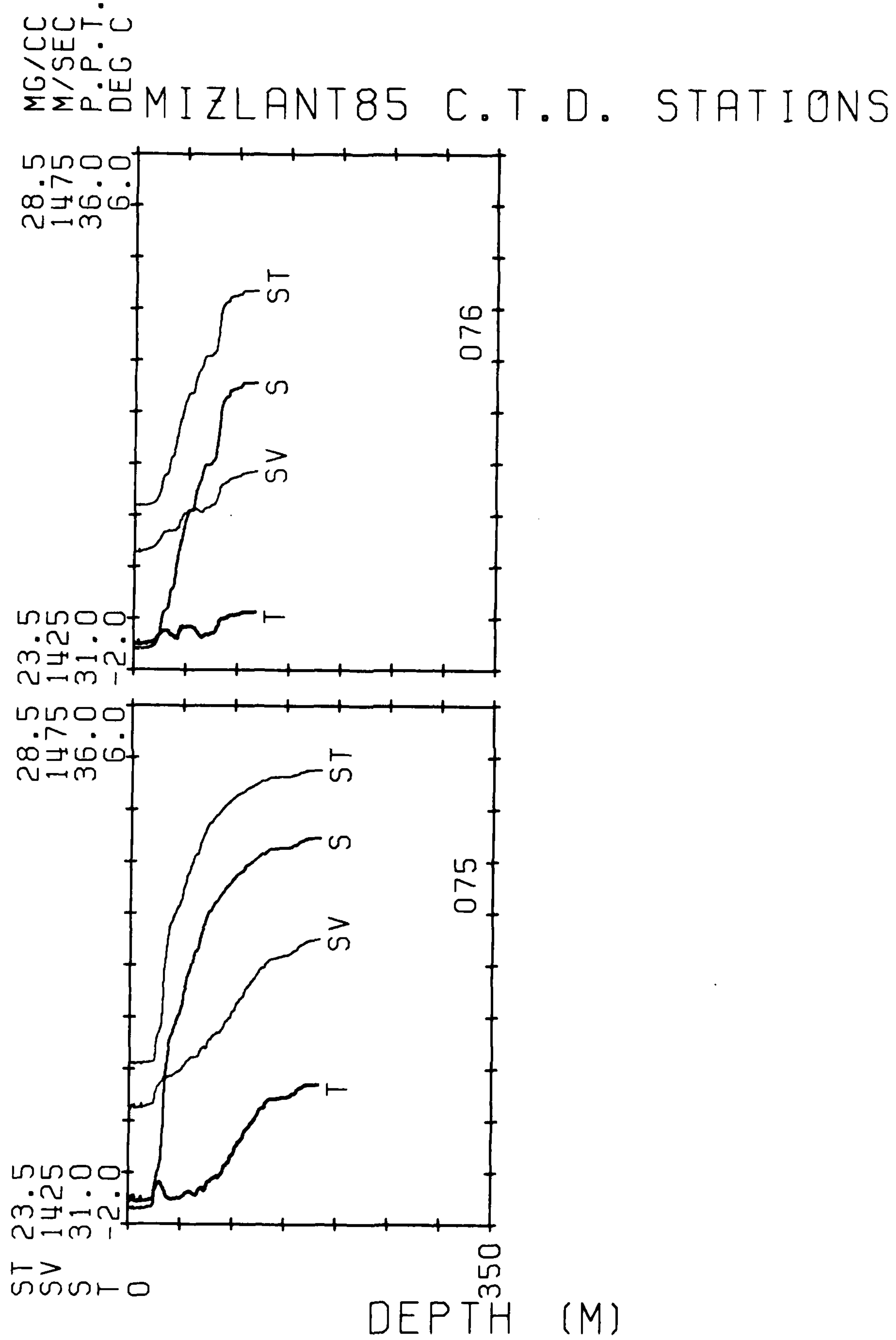
50
100
DEPTH (M/10)
T
SV
S
ST
074
MIZLANT 85 CTD STATIONS


MIZLANT85 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
ST 23.5 28.5
SV 1425 1475
S 31.0 36.0
T -2.0 6.0
0
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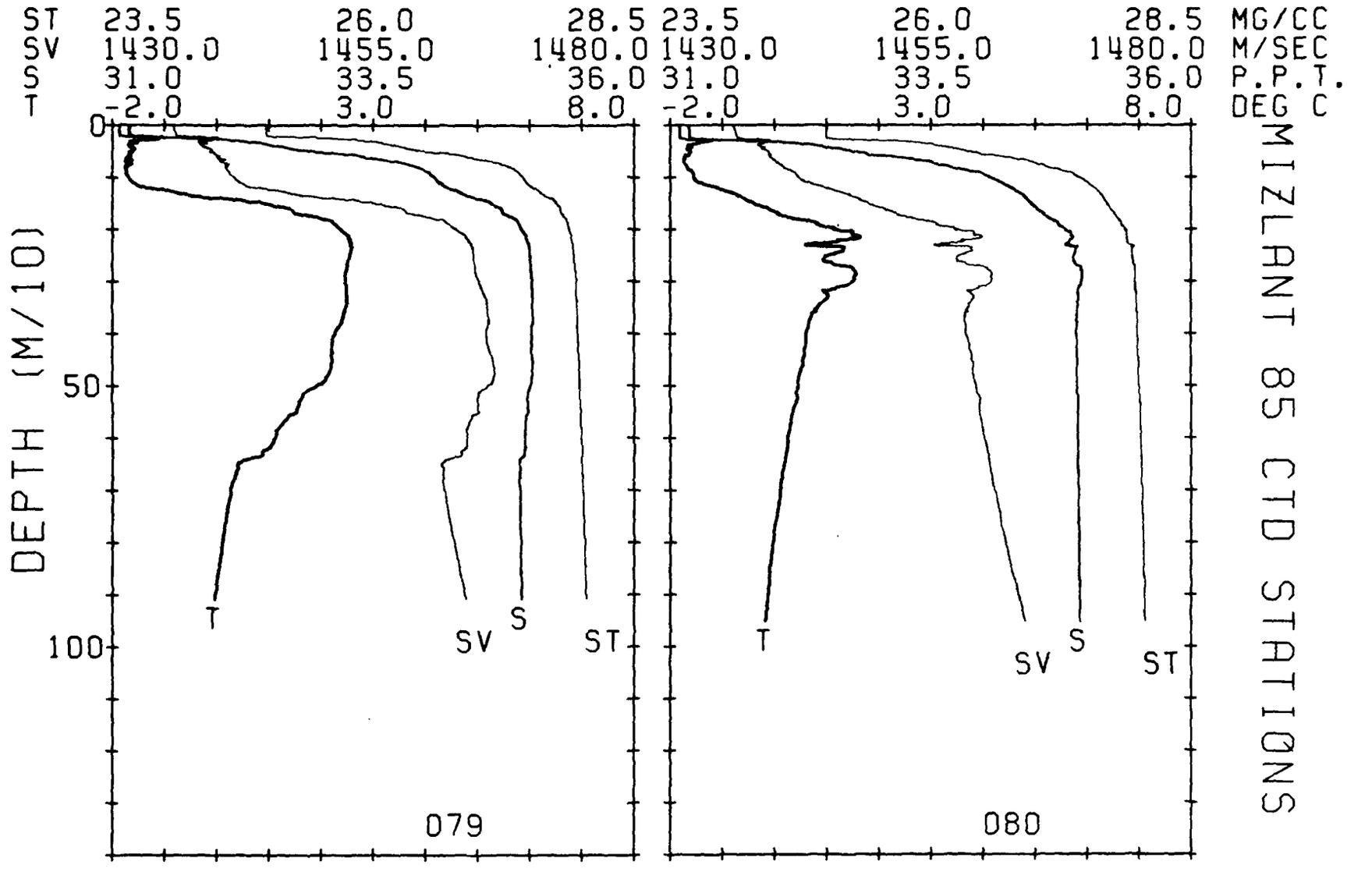
DEPTH (M)
075
076
T
SV
S
ST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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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SV
S
ST
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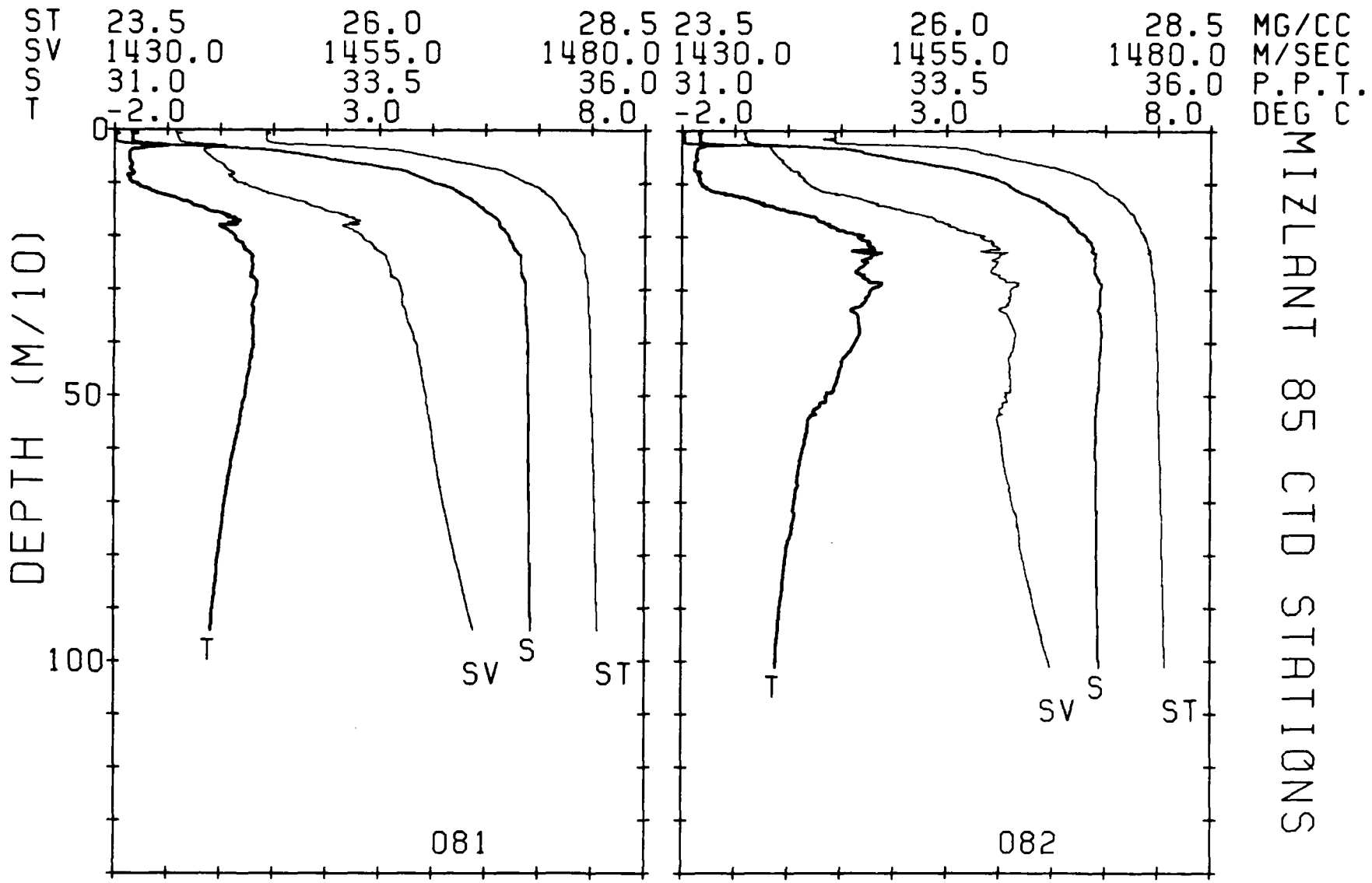
080
MIZLANT 85 CTD STATIONS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S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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SV
S
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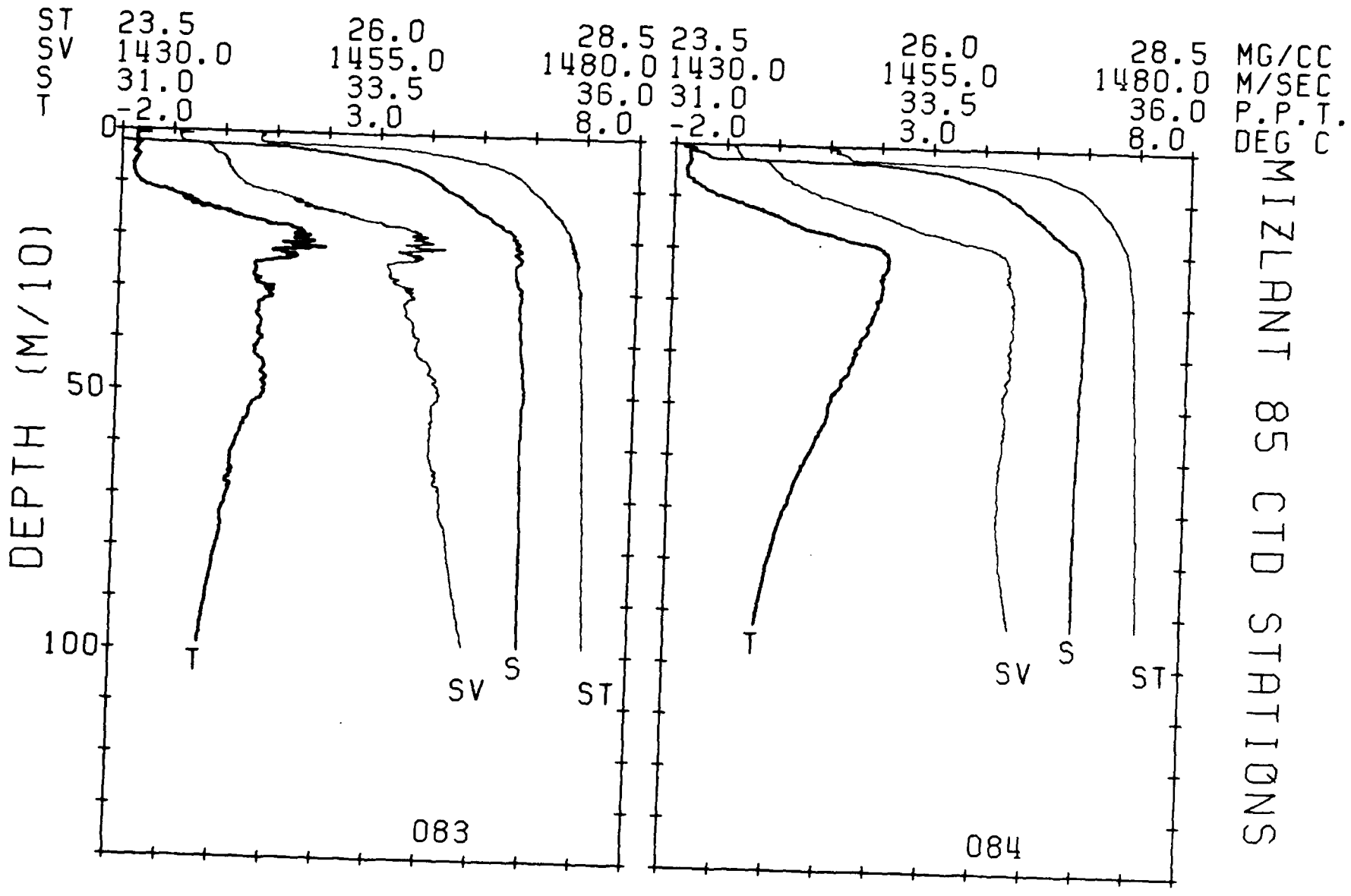
082
MIZLANT 85 CTD STATIONS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S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
MIZLANT 85 CTD STATIONS
DEPTH (M/10)
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100
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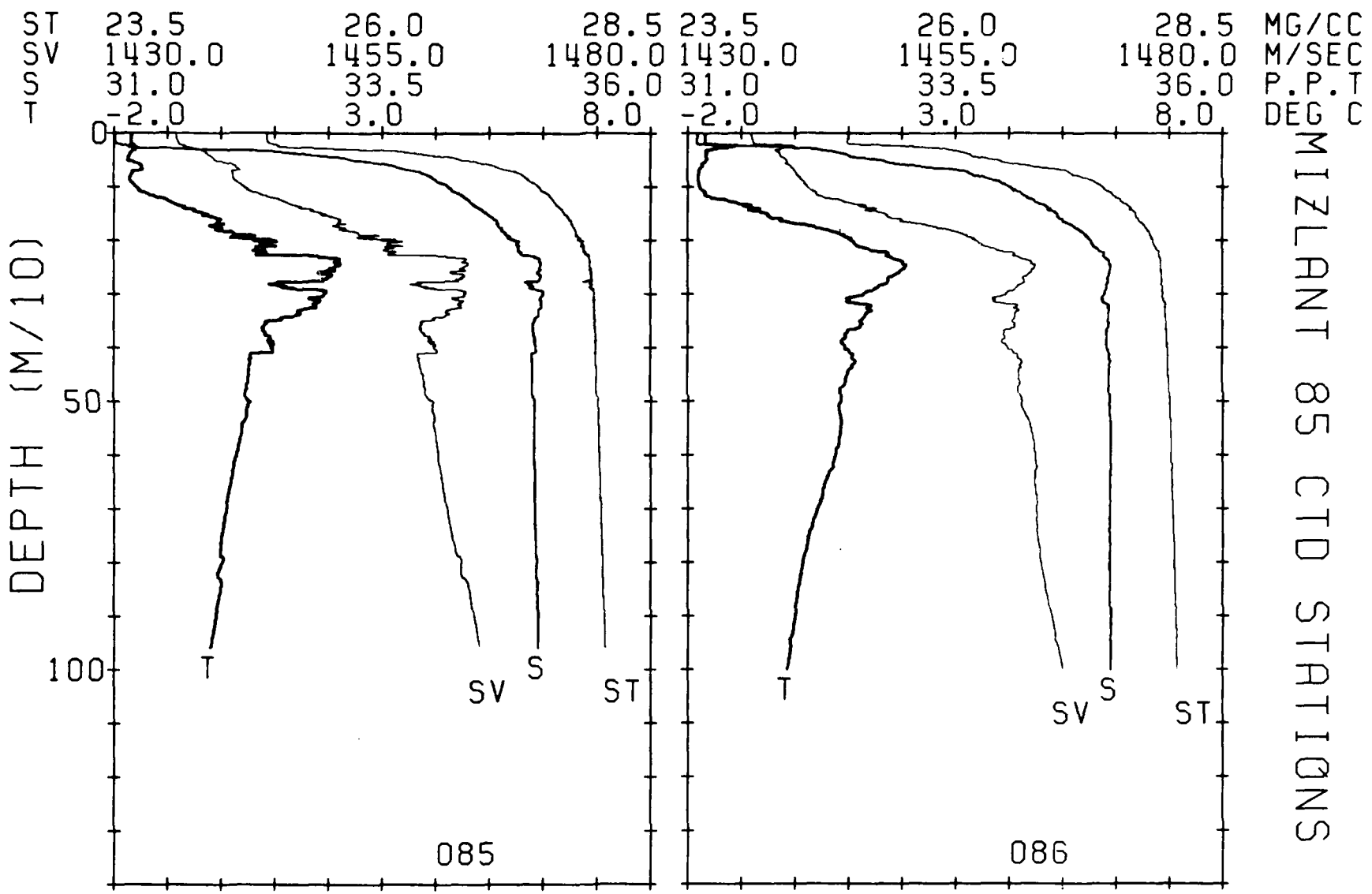
SV
S
ST
083
084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S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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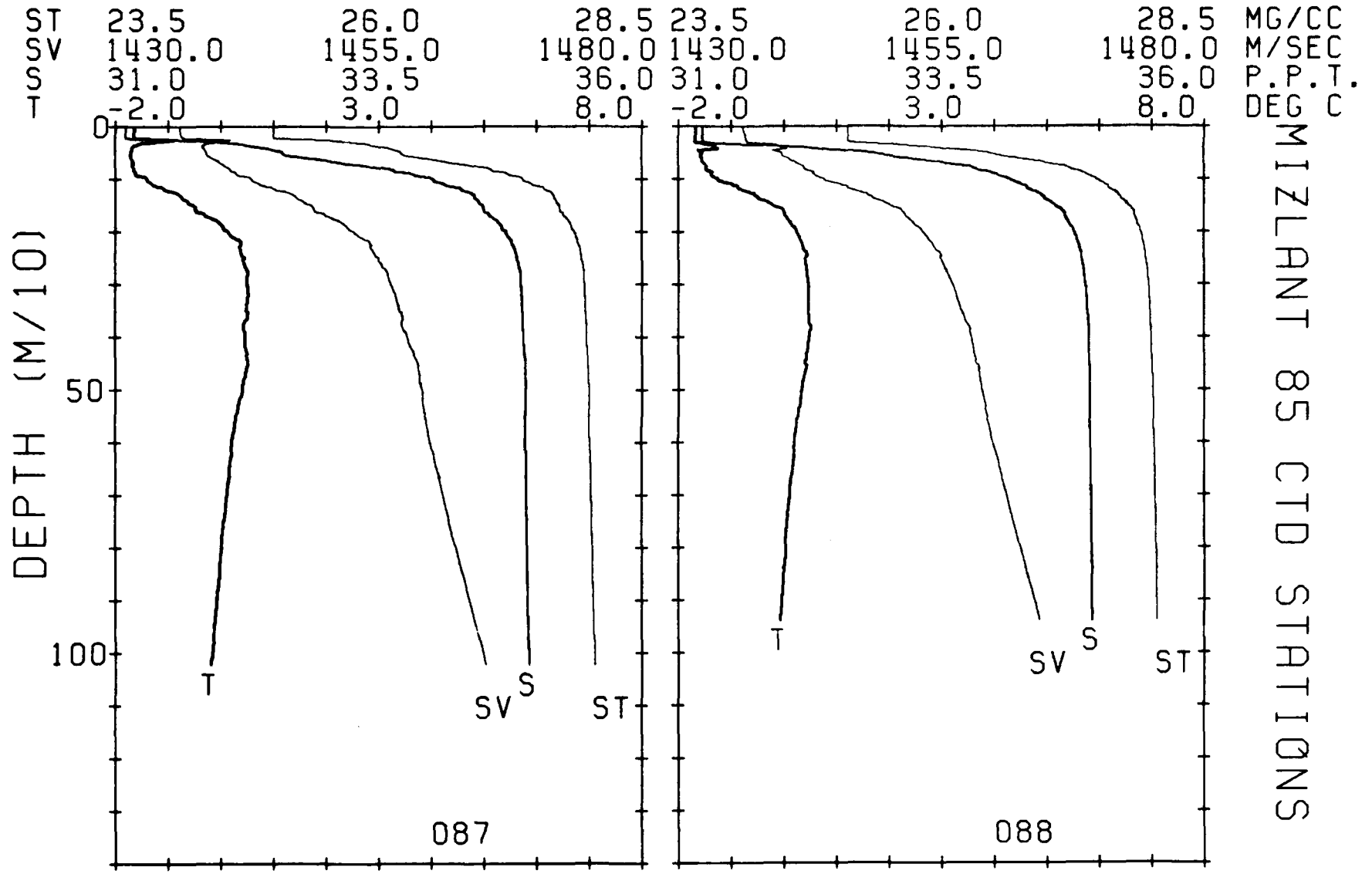
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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S
ST
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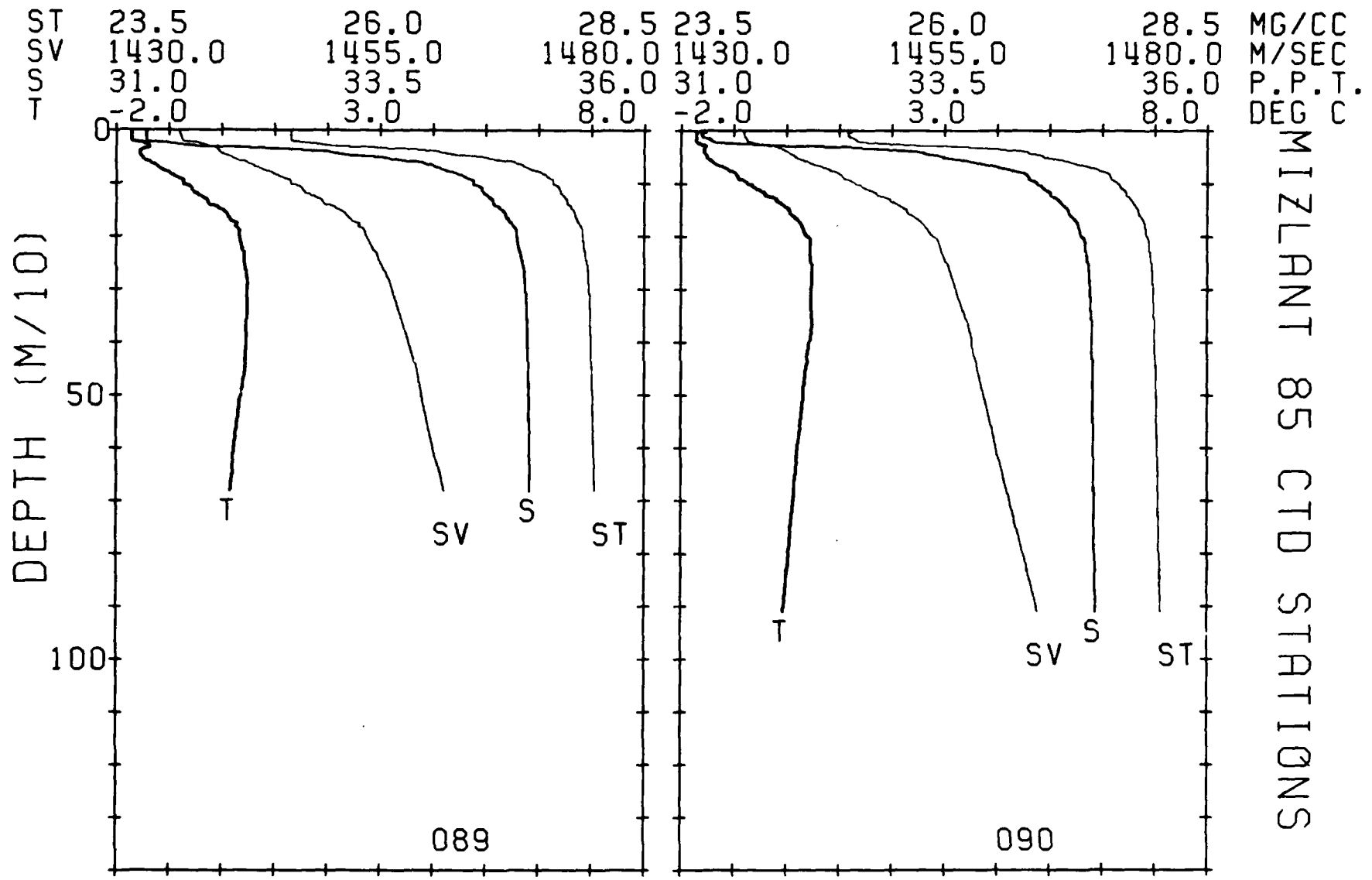
MIZLANT 85 CTD STATIONS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T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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S
ST
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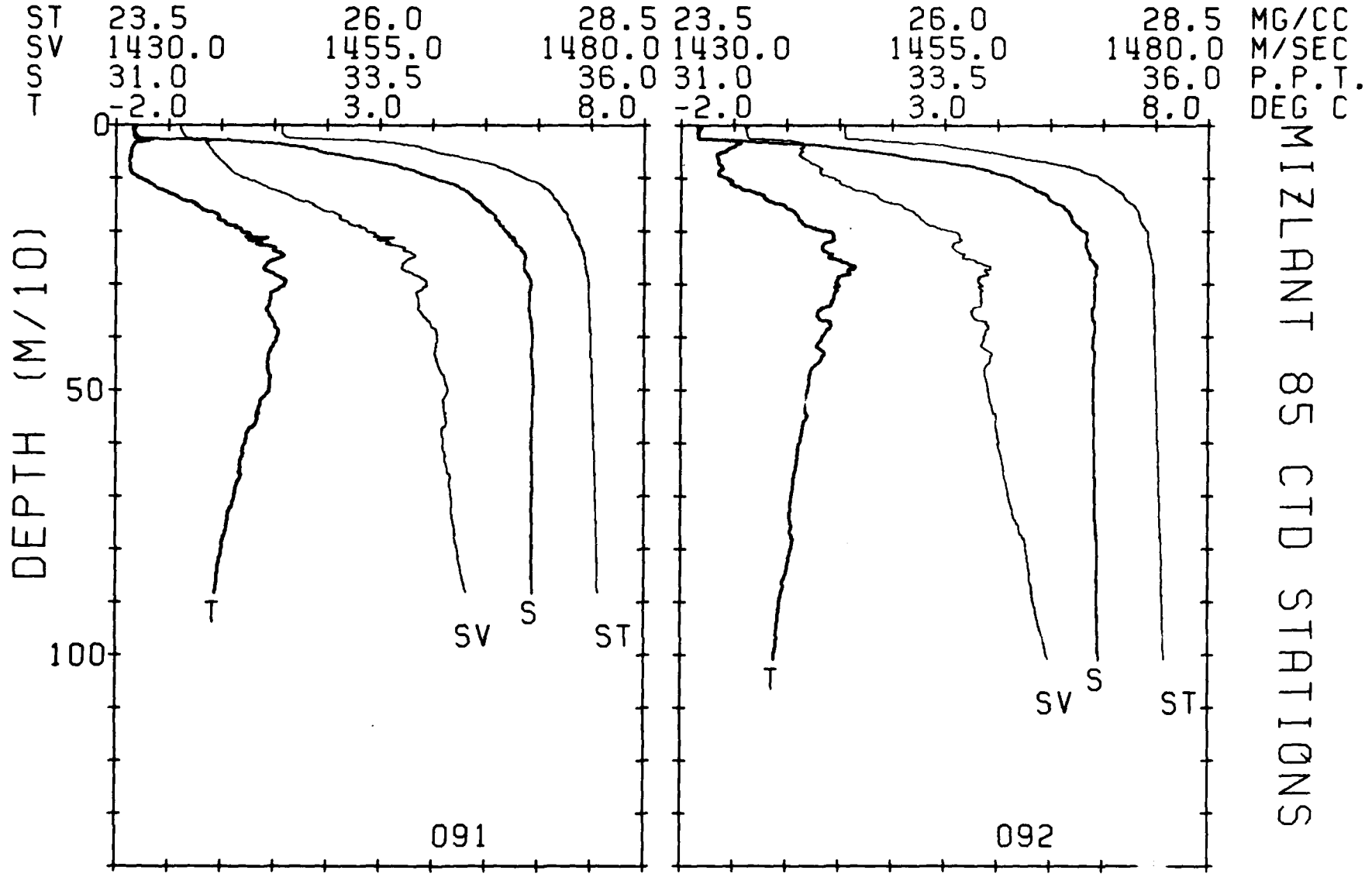
090
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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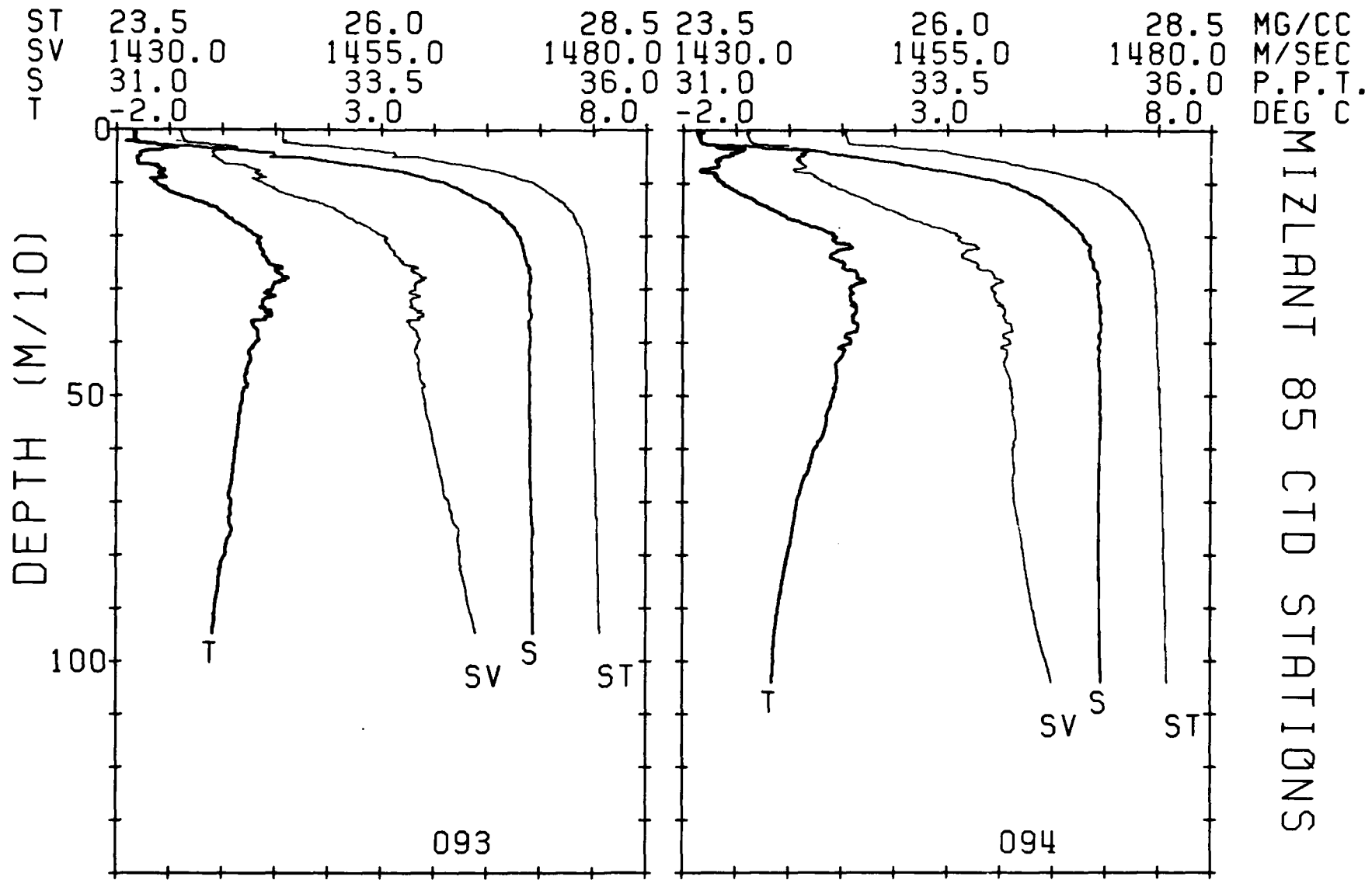
092
MIZLANT 85 CTD STATIONS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S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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SV
S
ST
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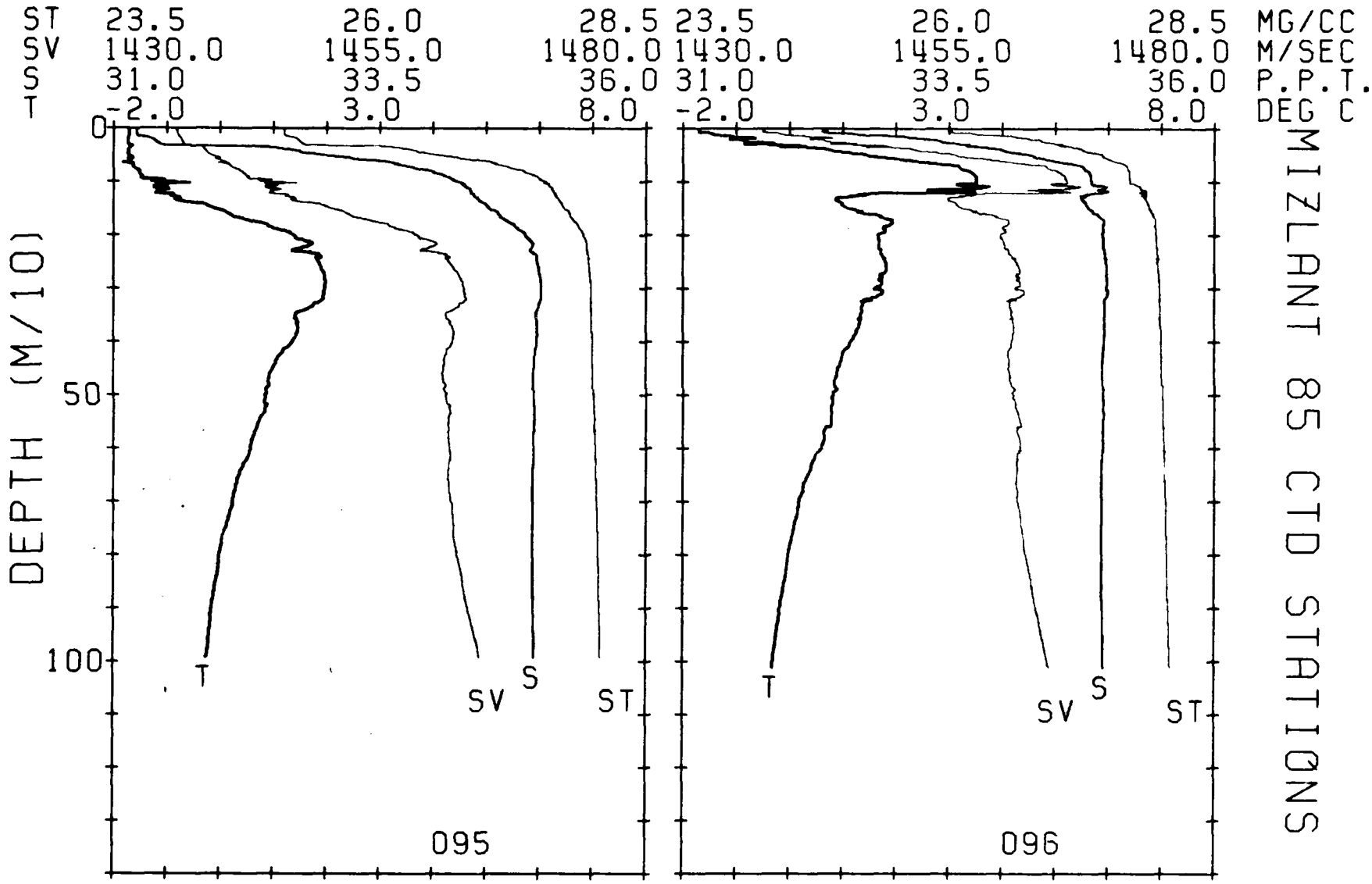
MIZLANT 85 CTD STATIONS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T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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100
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SV
S
ST
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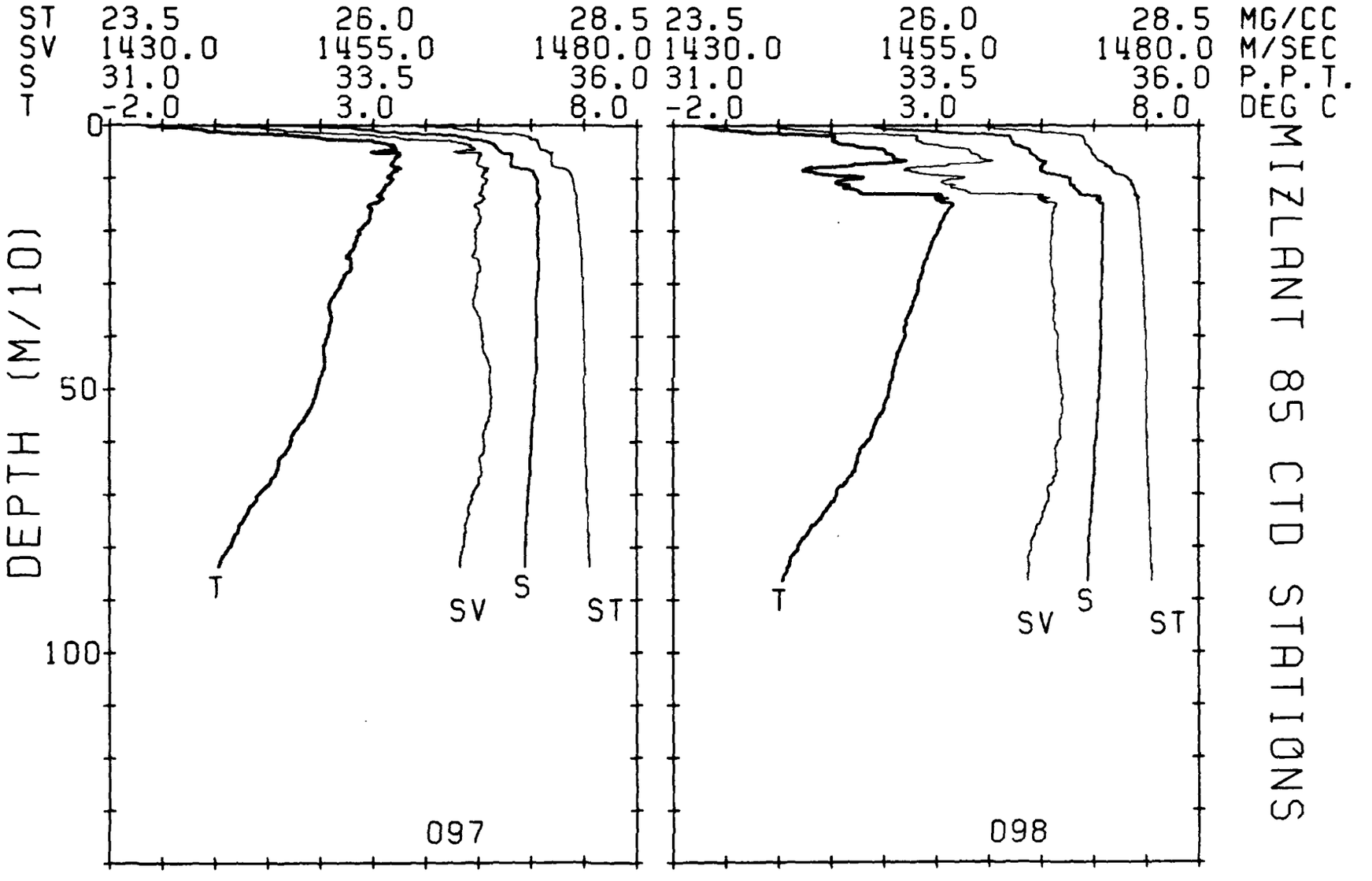
096
MIZLANT 85 CTD STATIONS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S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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100
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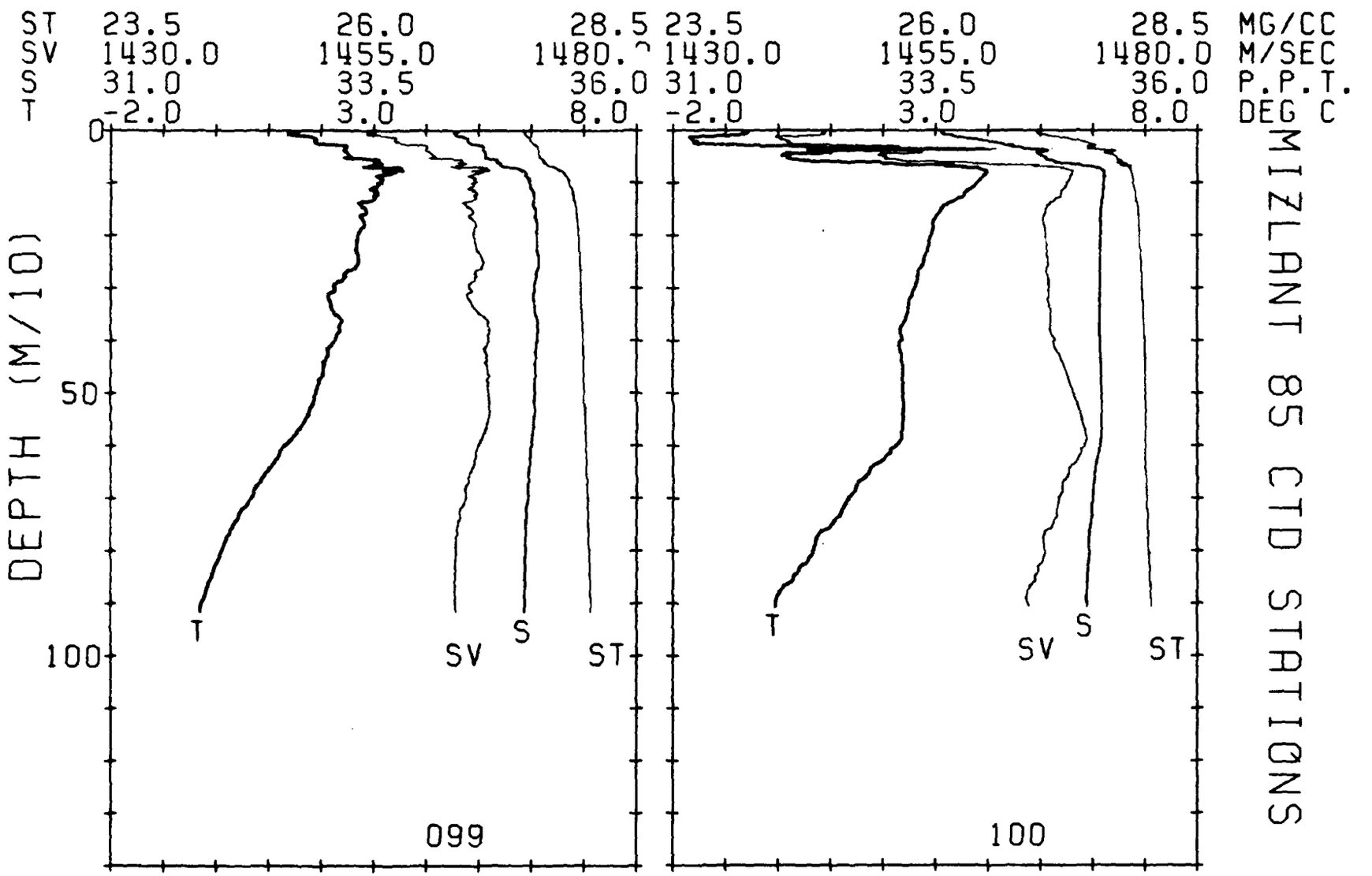
SV
S
ST
097
098
MIZLANT 85 CTD STATIONS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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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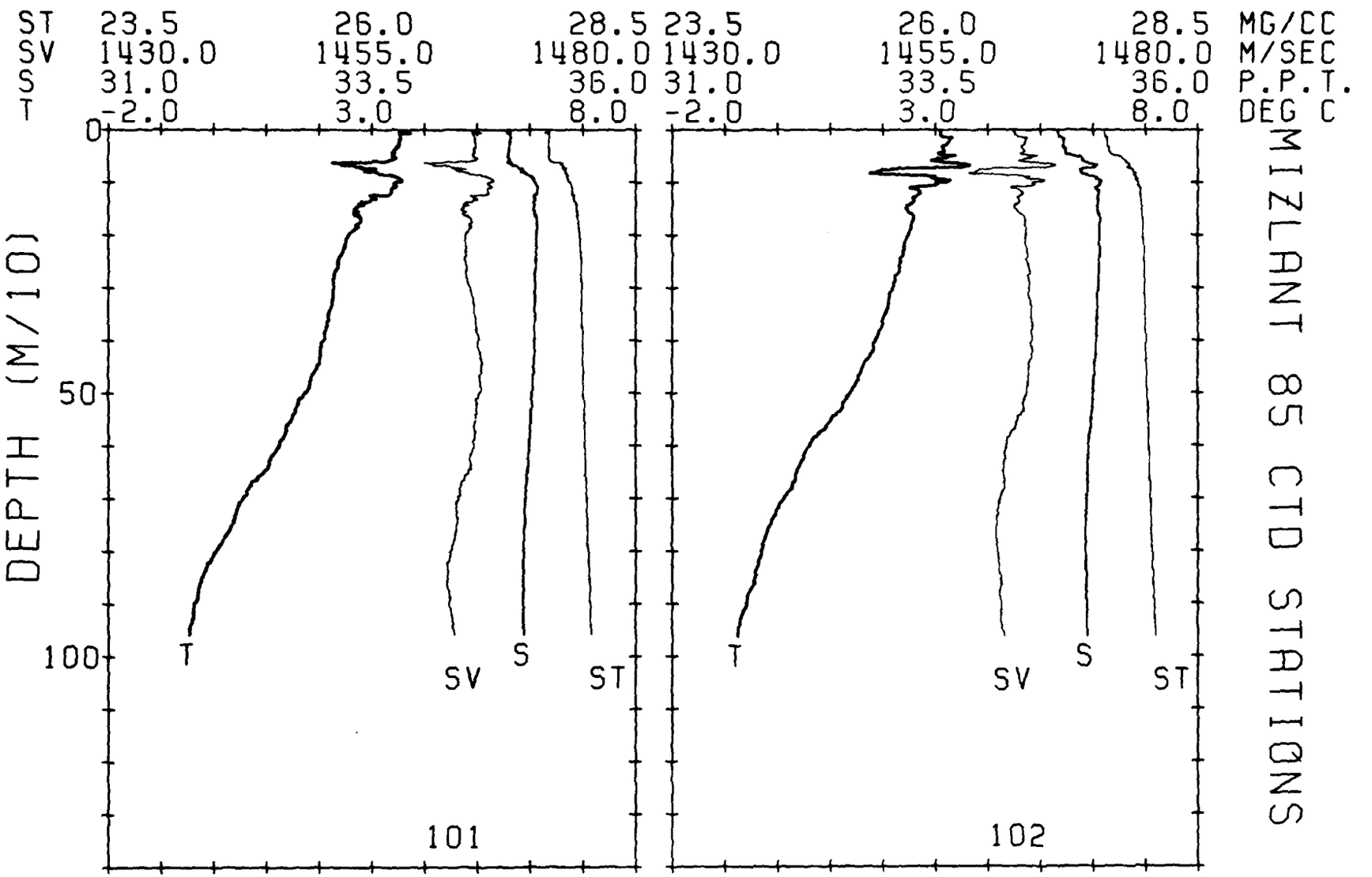
100
T
SV
S
ST
099
100
MIZLANT 85 CTD STATIONS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S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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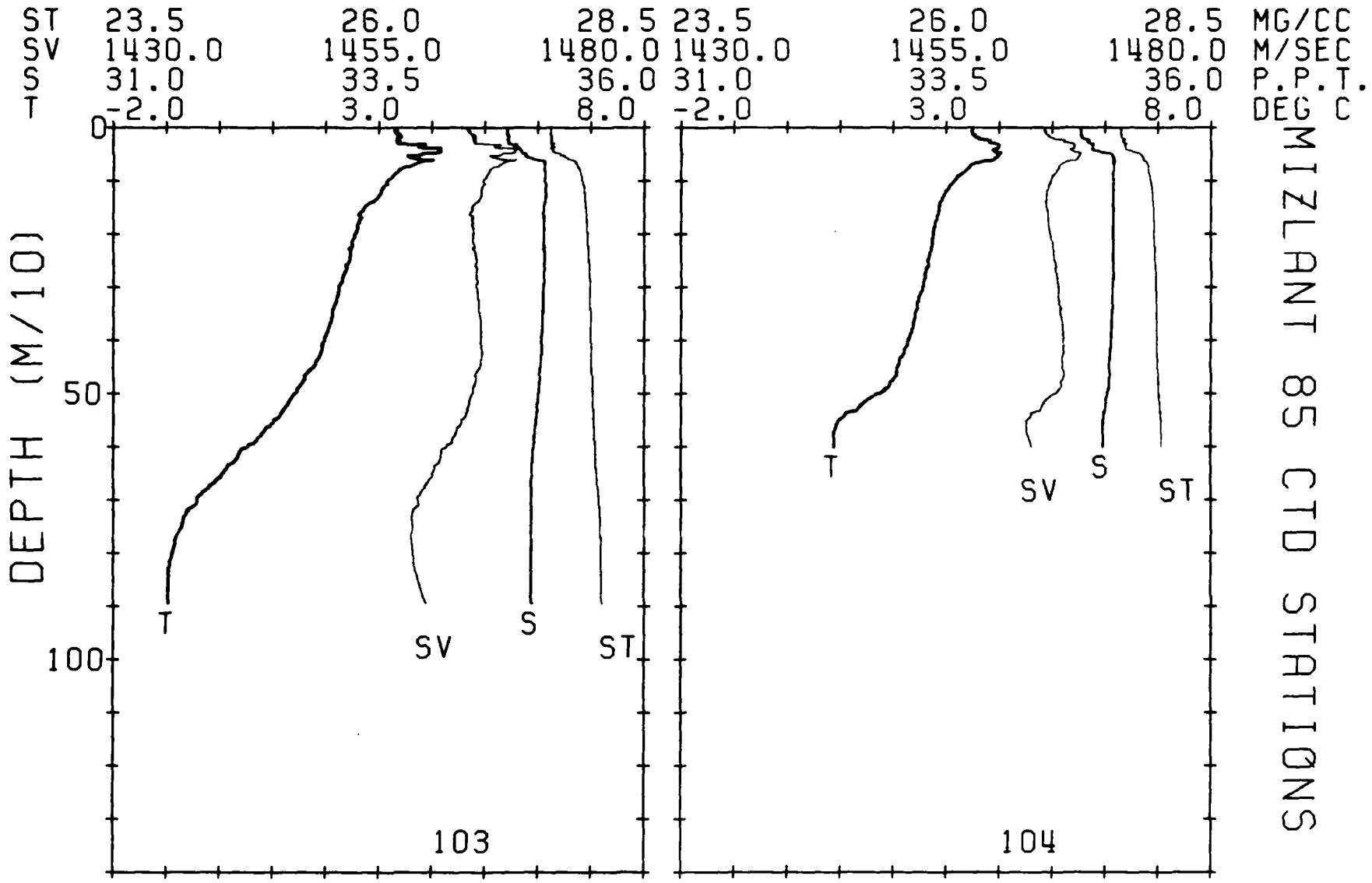
S
ST
101
102
MIZLANT 85 CTD STATIONS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S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
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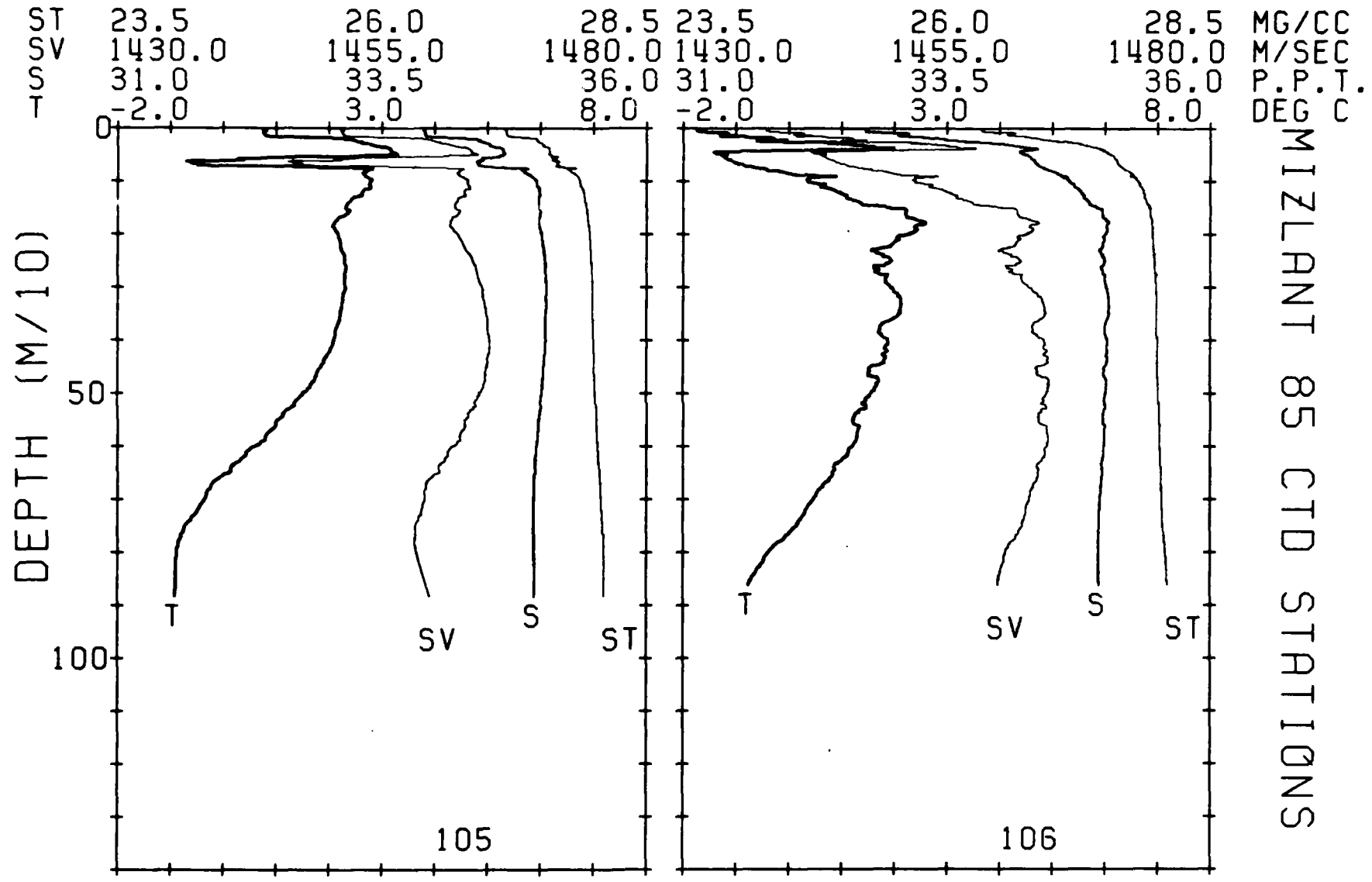
SV
S
ST
103
104
MIZLANT 85 CTD STATIONS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S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
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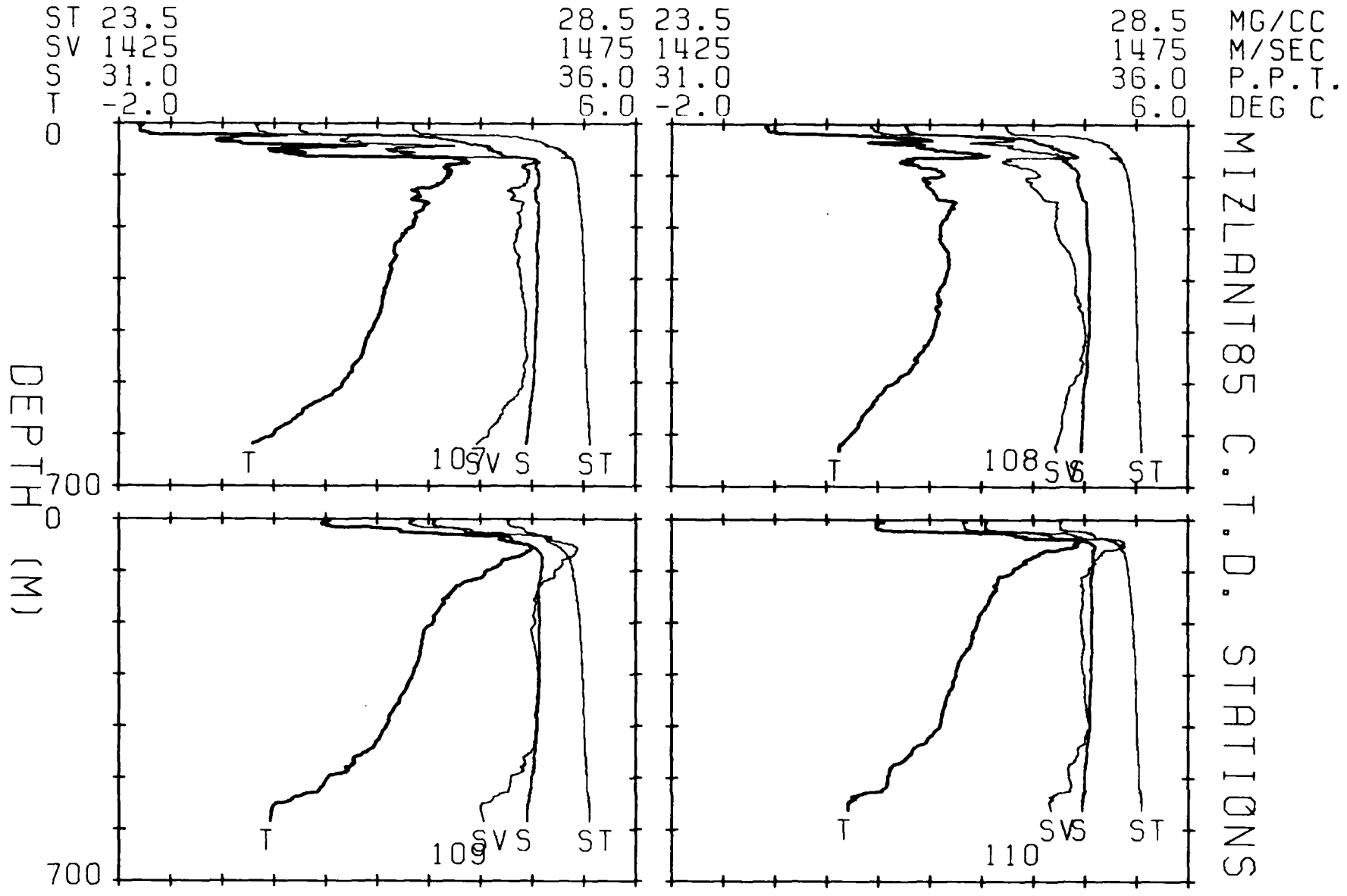
100
T
SV
S
ST
105
106
MIZLANT 85 CTD STATIONS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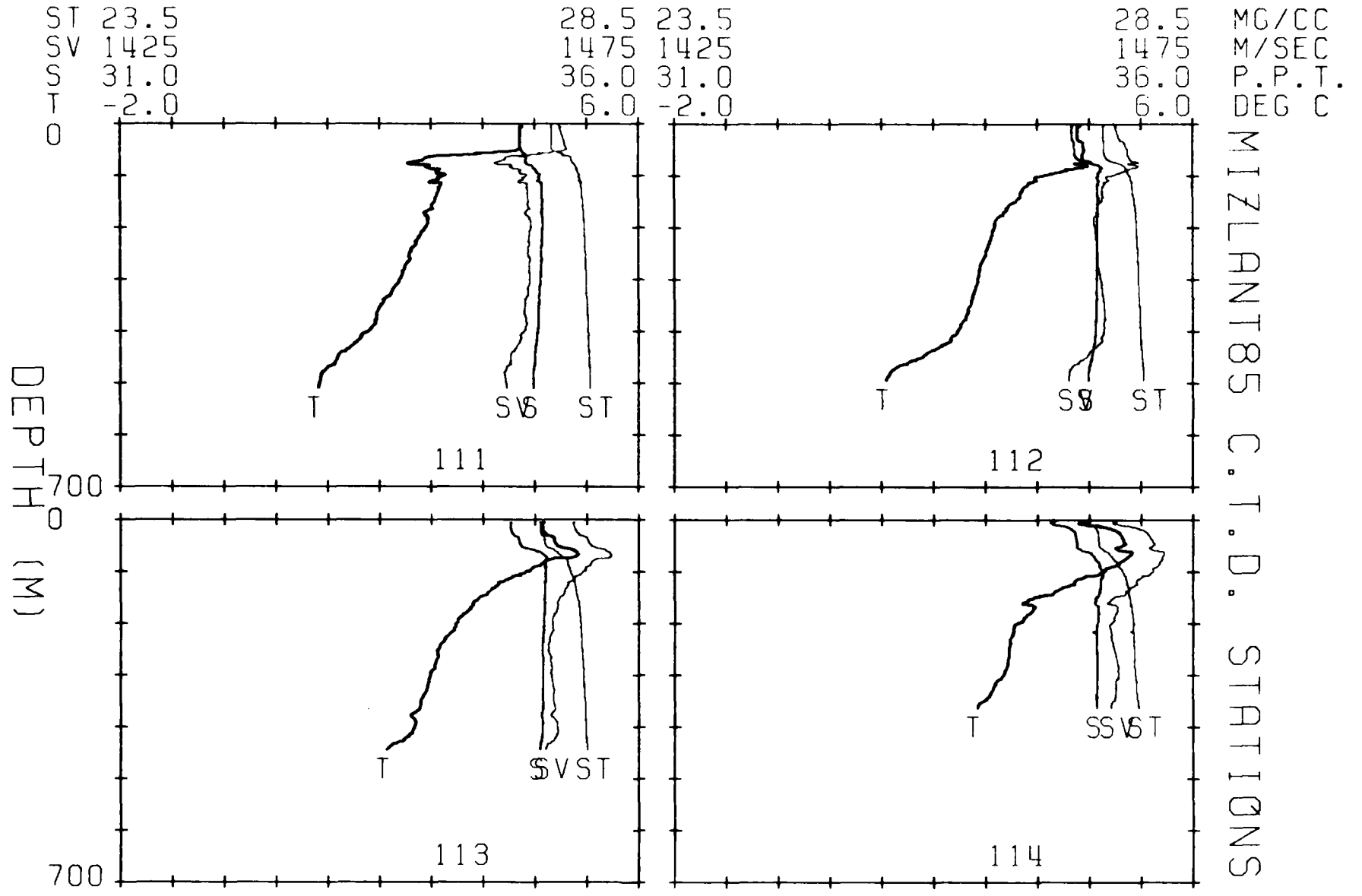
SV 1425 1475 1425 1475 M/SEC
S 31.0 36.0 31.0 36.0 P.P.T.
T -2.0 6.0 -2.0 6.0 DEG C
0
700
DEPTH (M)
T
SV
S
ST
107
108
109
110
MIZLANT85 C.T.D. STATIONS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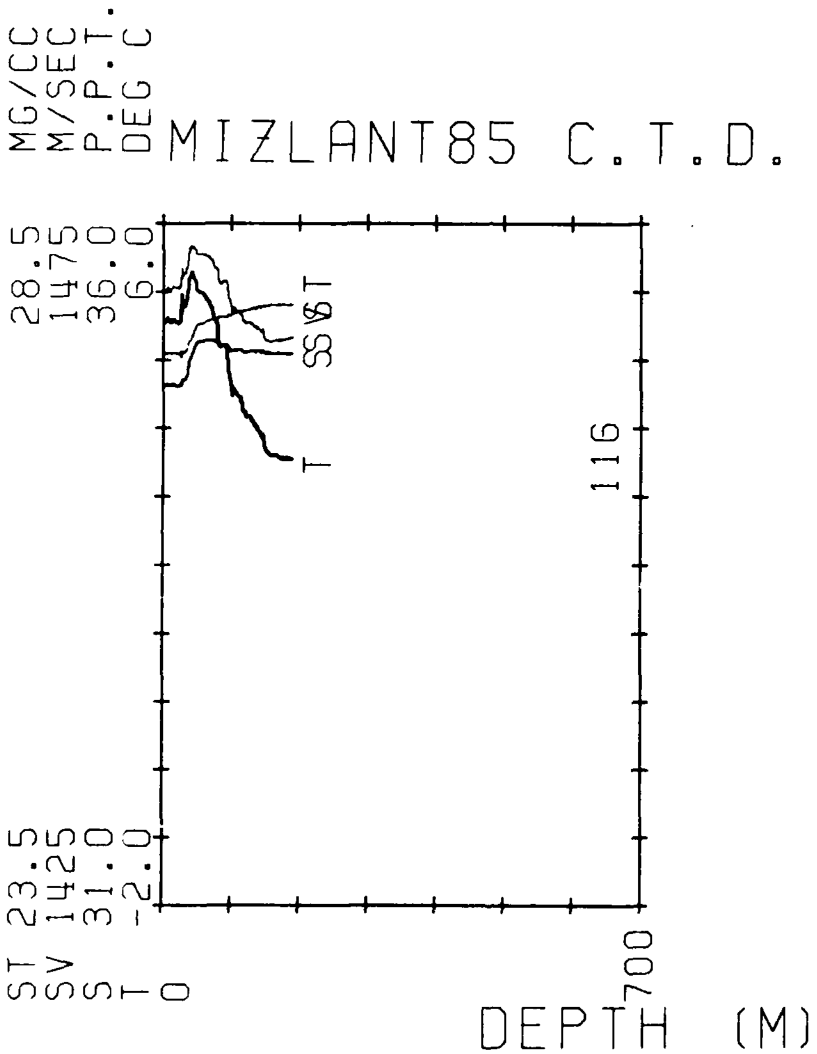
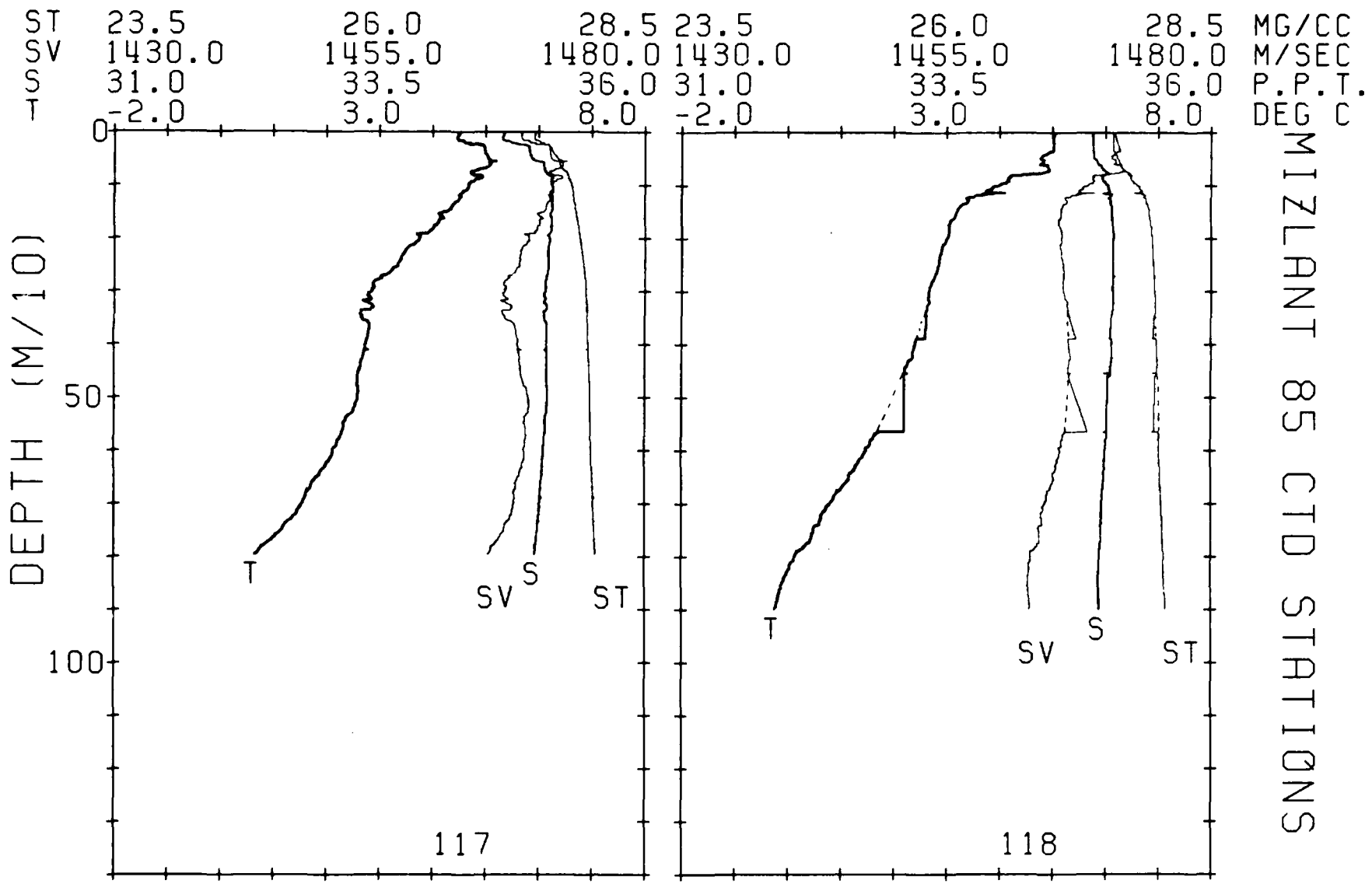
SV 1425 1475 1425 1475 M/SEC
S 31.0 36.0 31.0 36.0 P.P.T.
T -2.0 6.0 -2.0 6.0 DEG C
0
700
DEPTH (M)
T
S
V
ST
111
112
113
114
MIZLANT85 C.T.D. STATIONS

MIZLANT85 C.T.D. STATIONS

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SV 1430.0 1455.0 1480.0 1430.0 1455.0 1480.0 M/SEC
S 31.0 33.5 36.0 31.0 33.5 36.0 P.P.T.
T -2.0 3.0 8.0 -2.0 3.0 8.0 DEG C
DEPTH (M/10)
0
50
100
T
SV
S
ST
117
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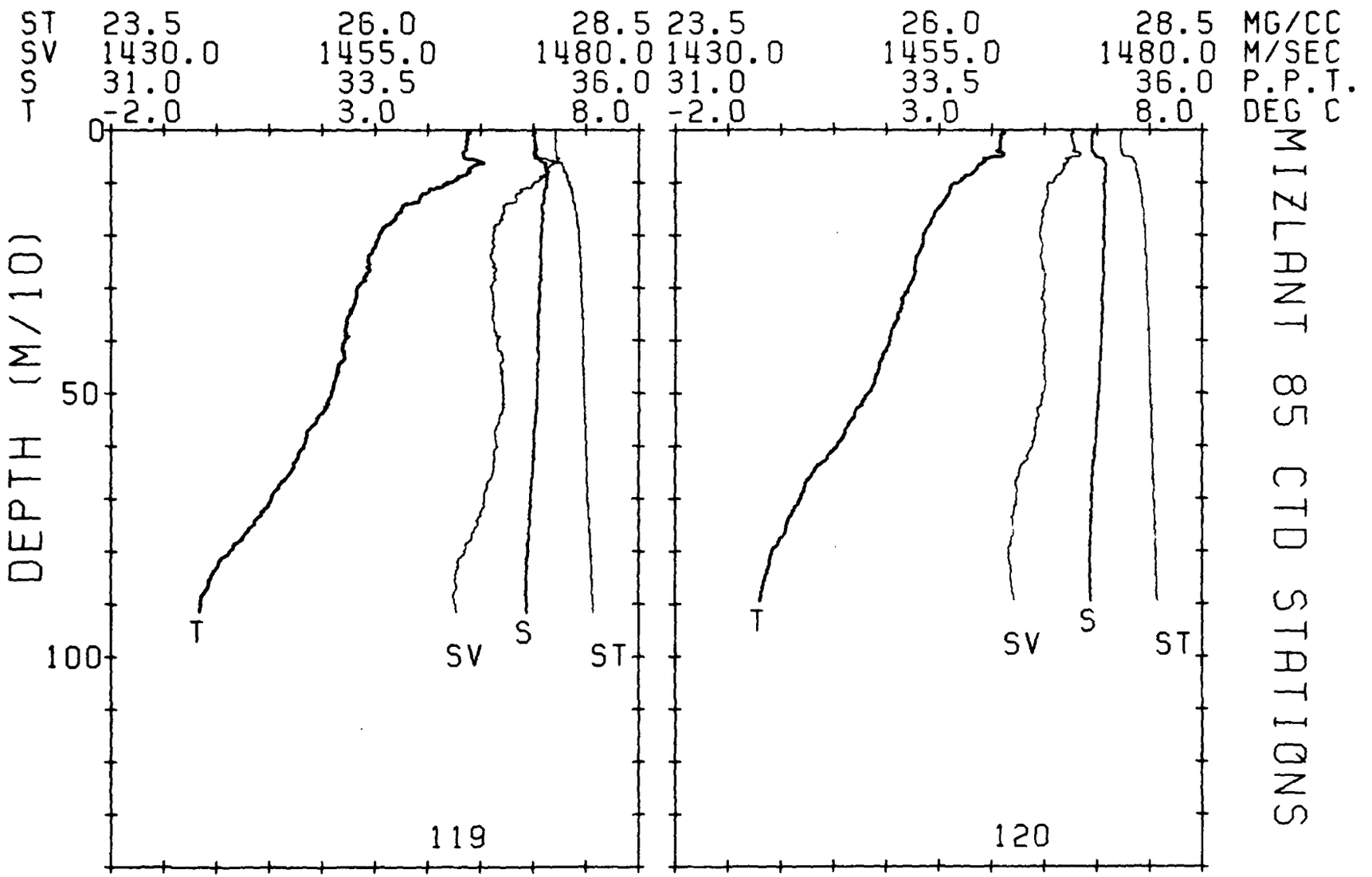
MIZLANT 85 CTD STATIONS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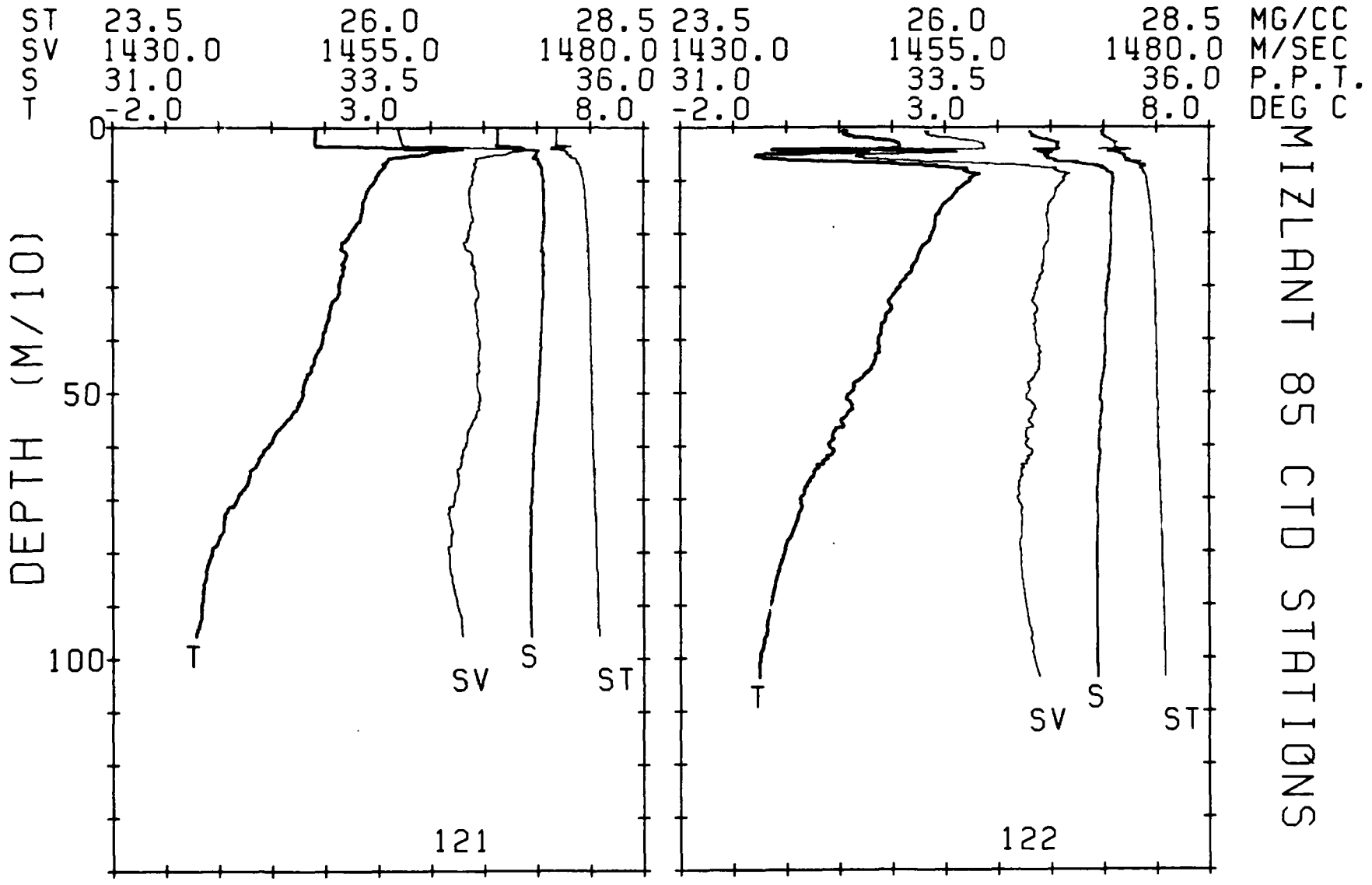
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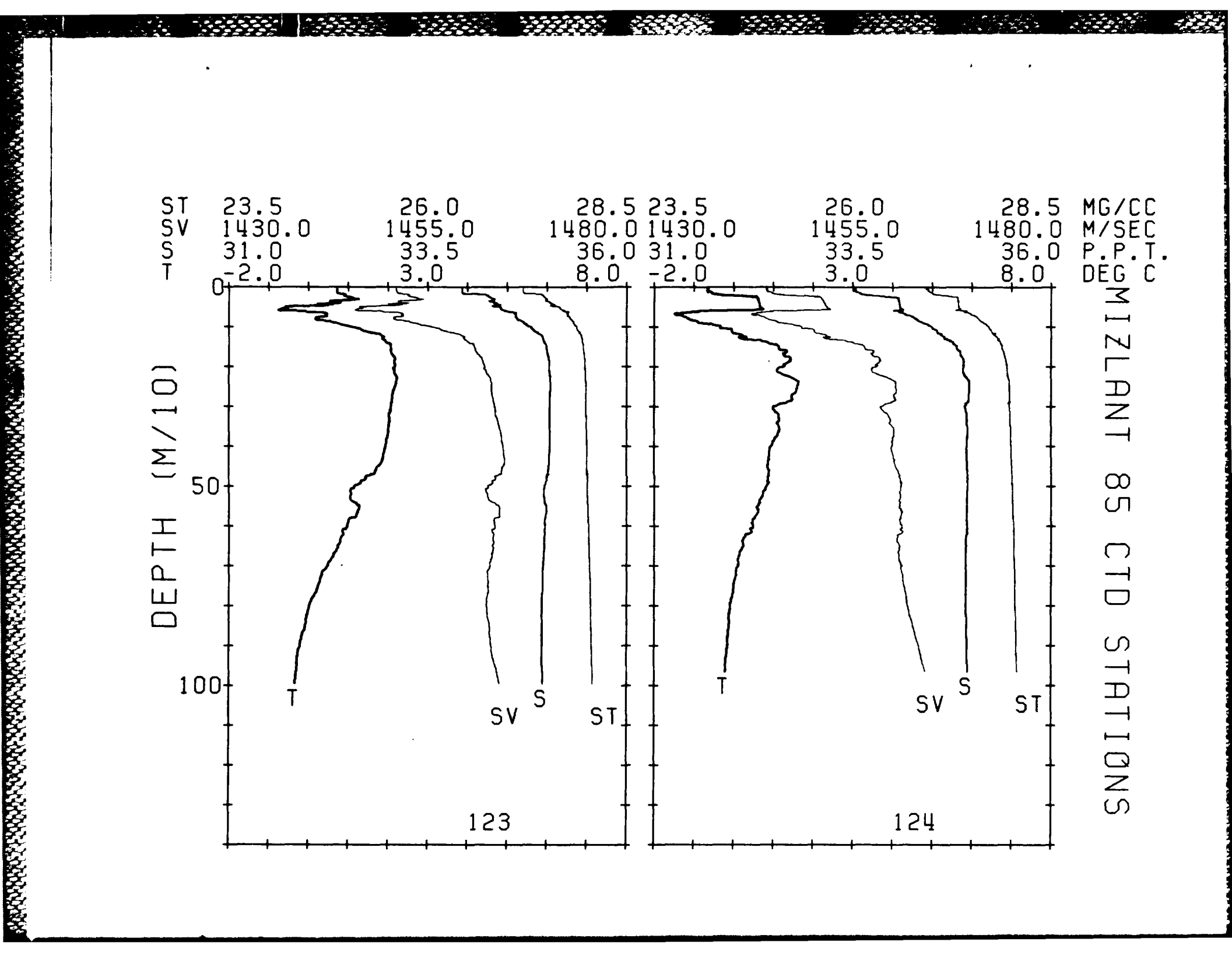
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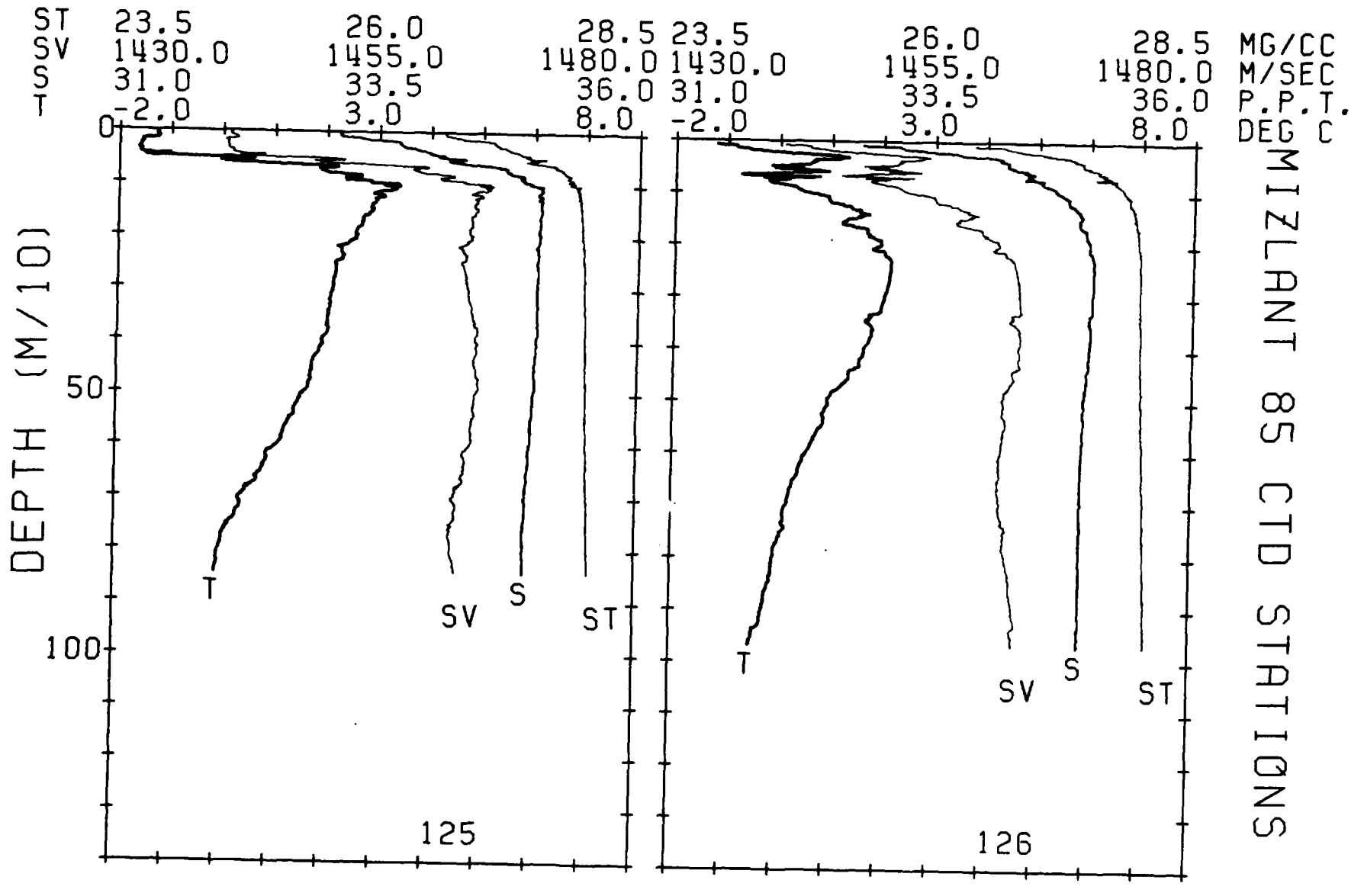
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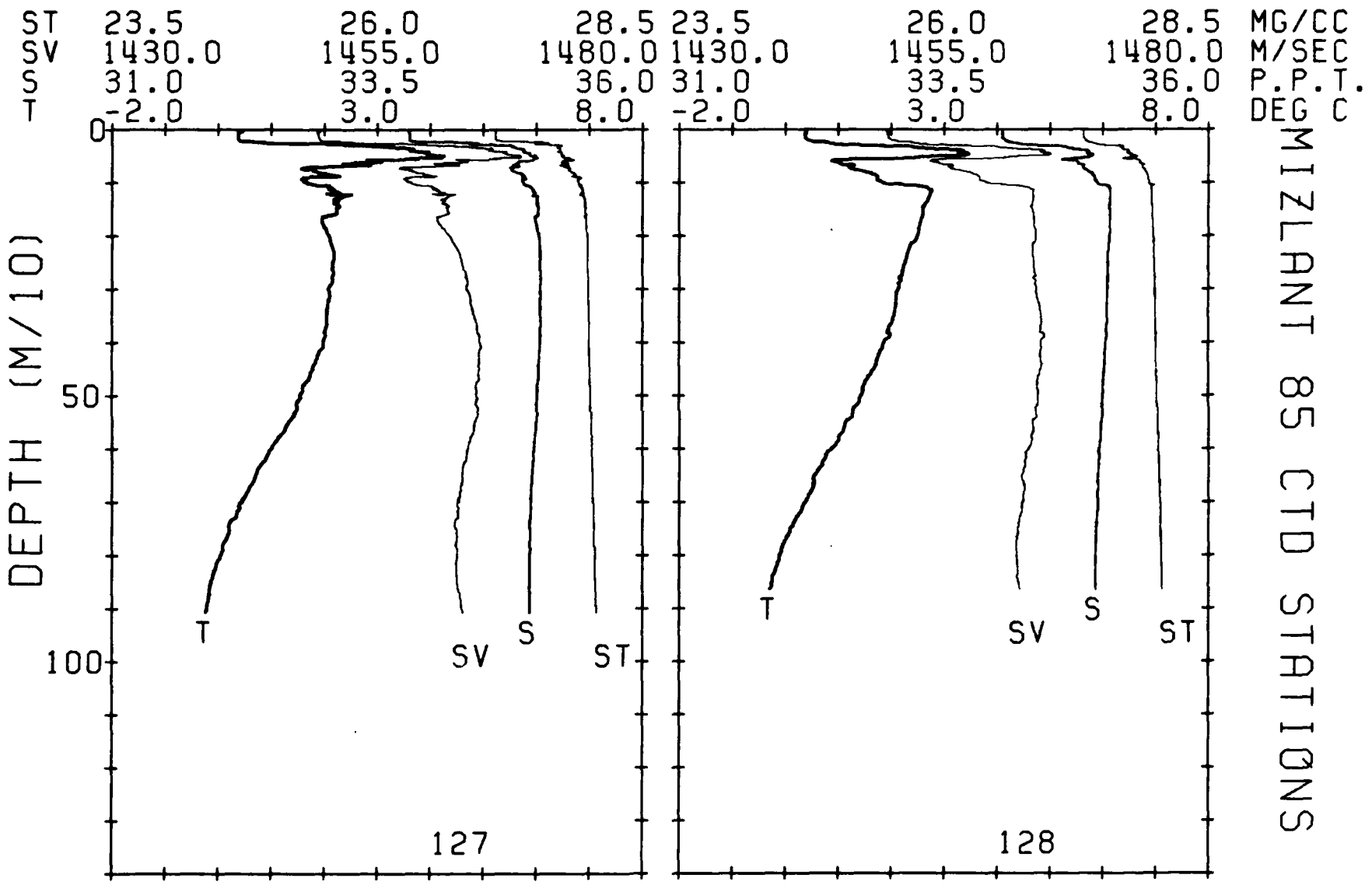
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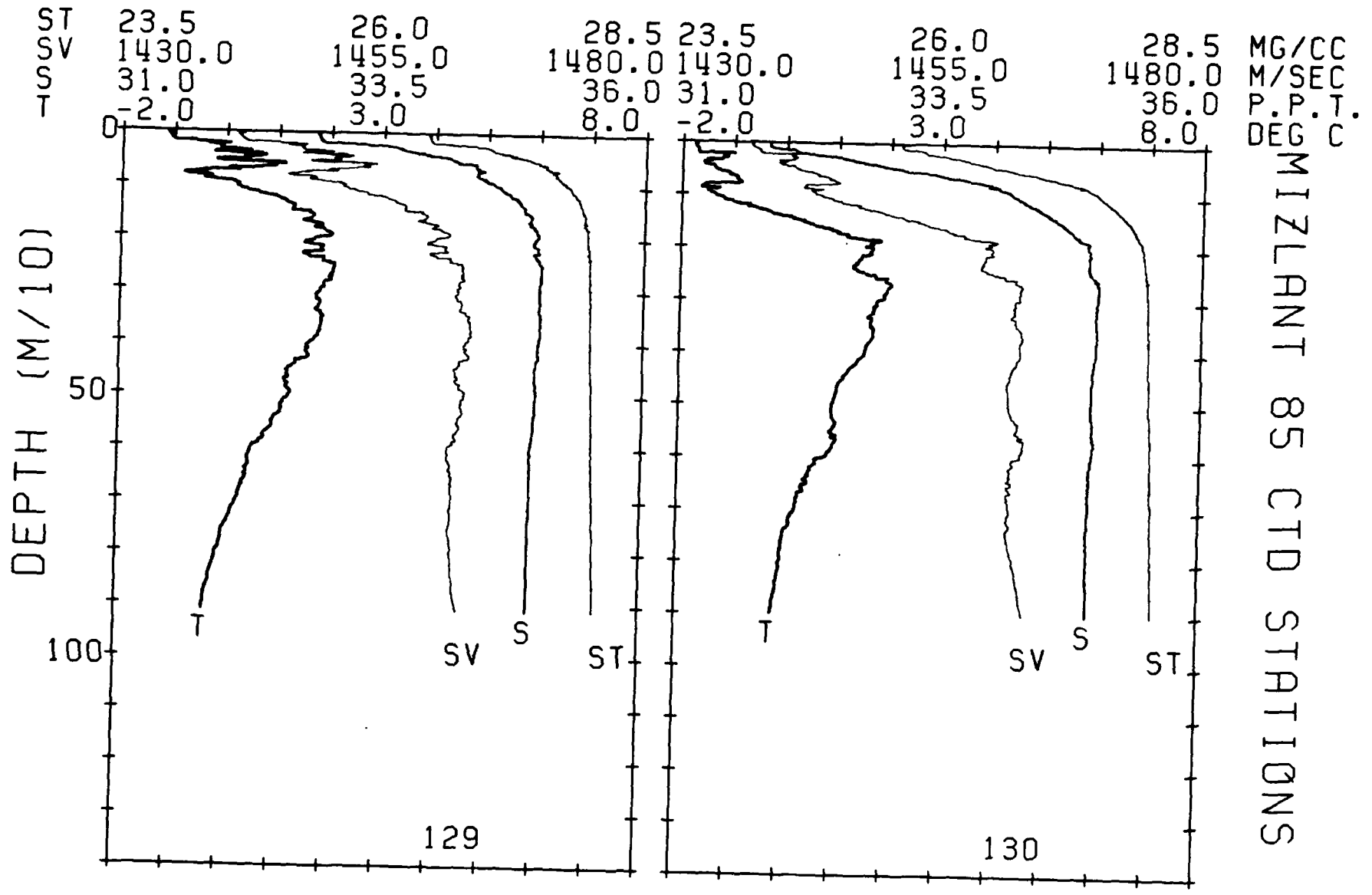
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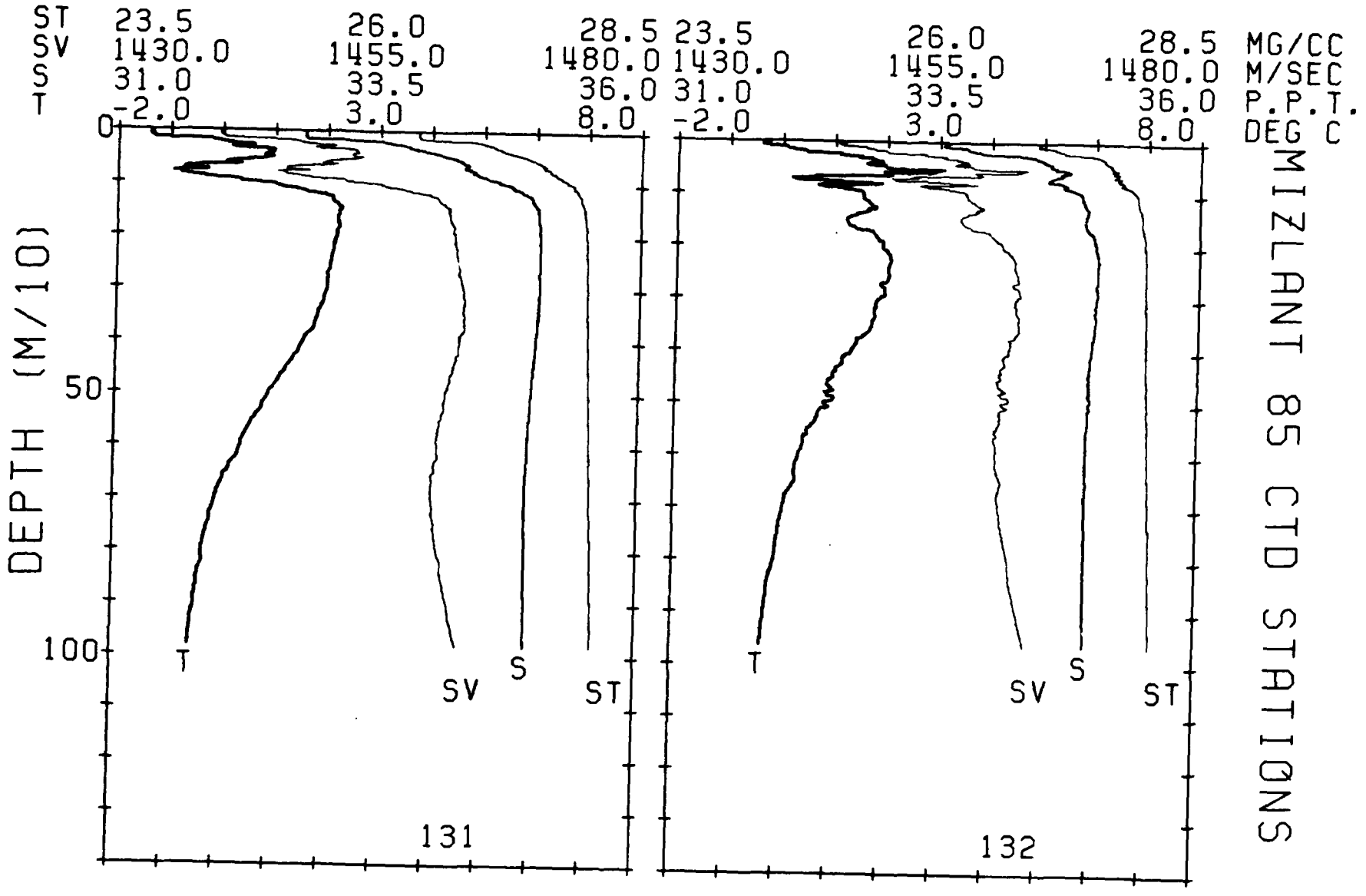
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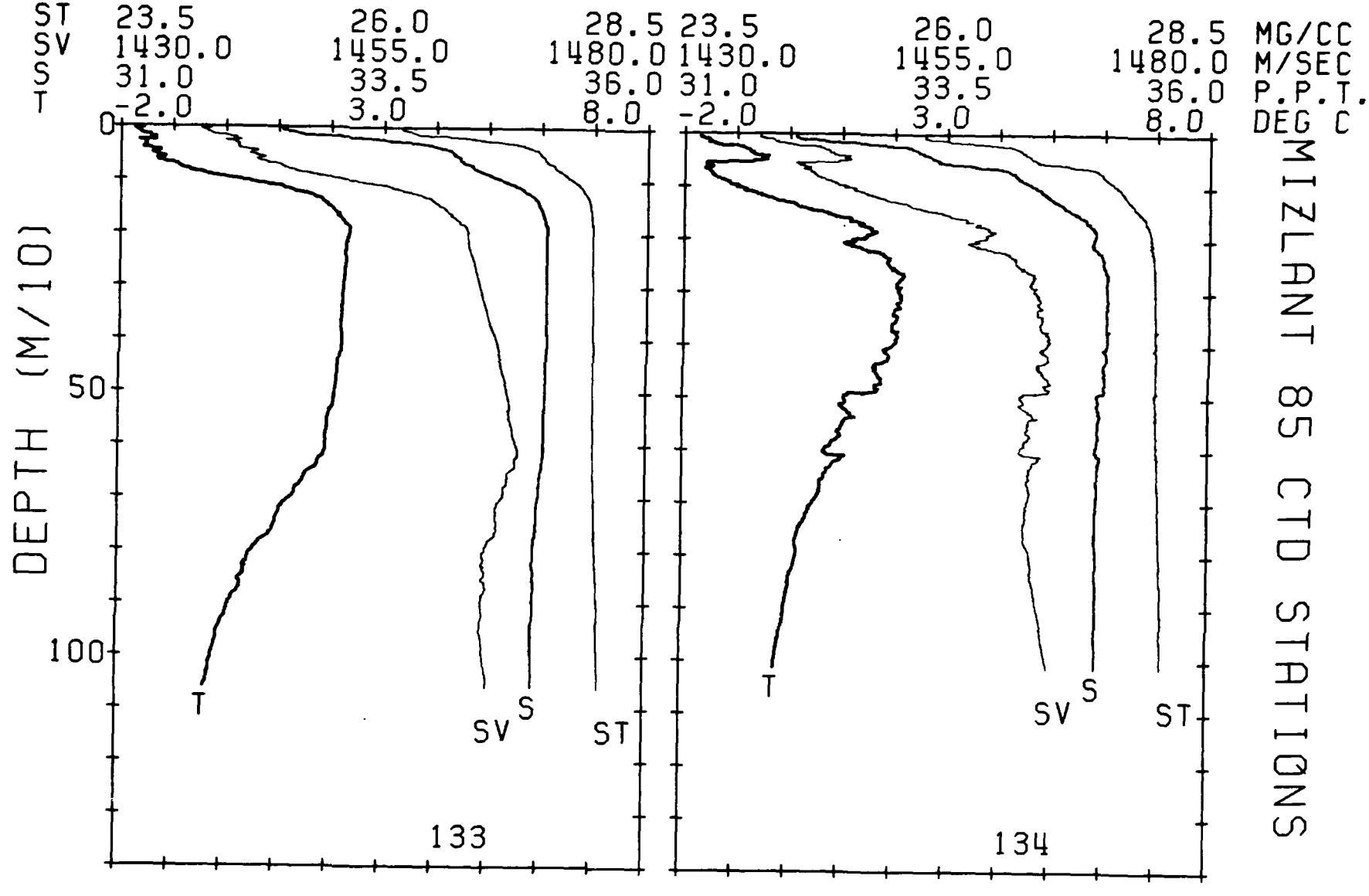
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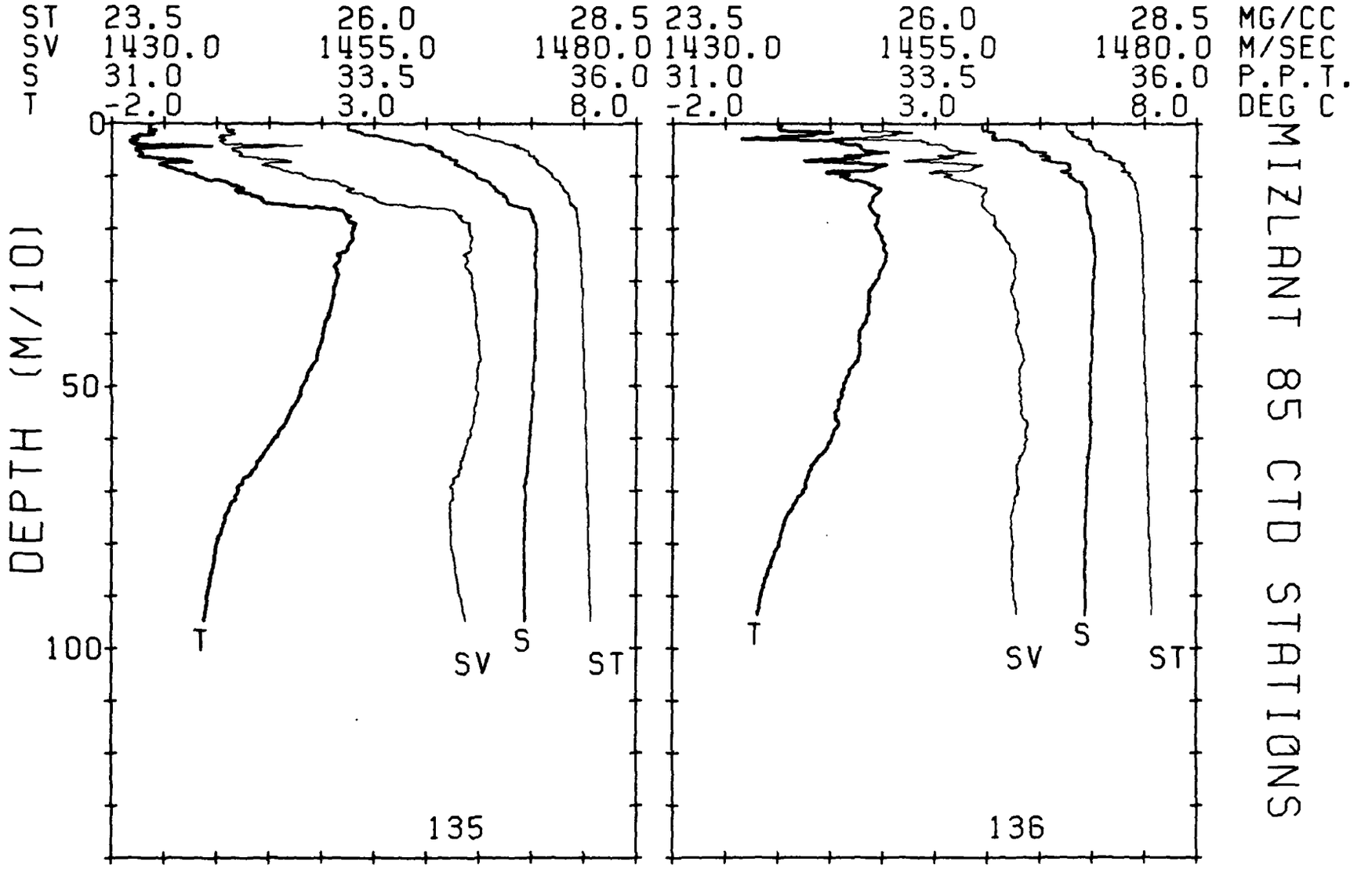
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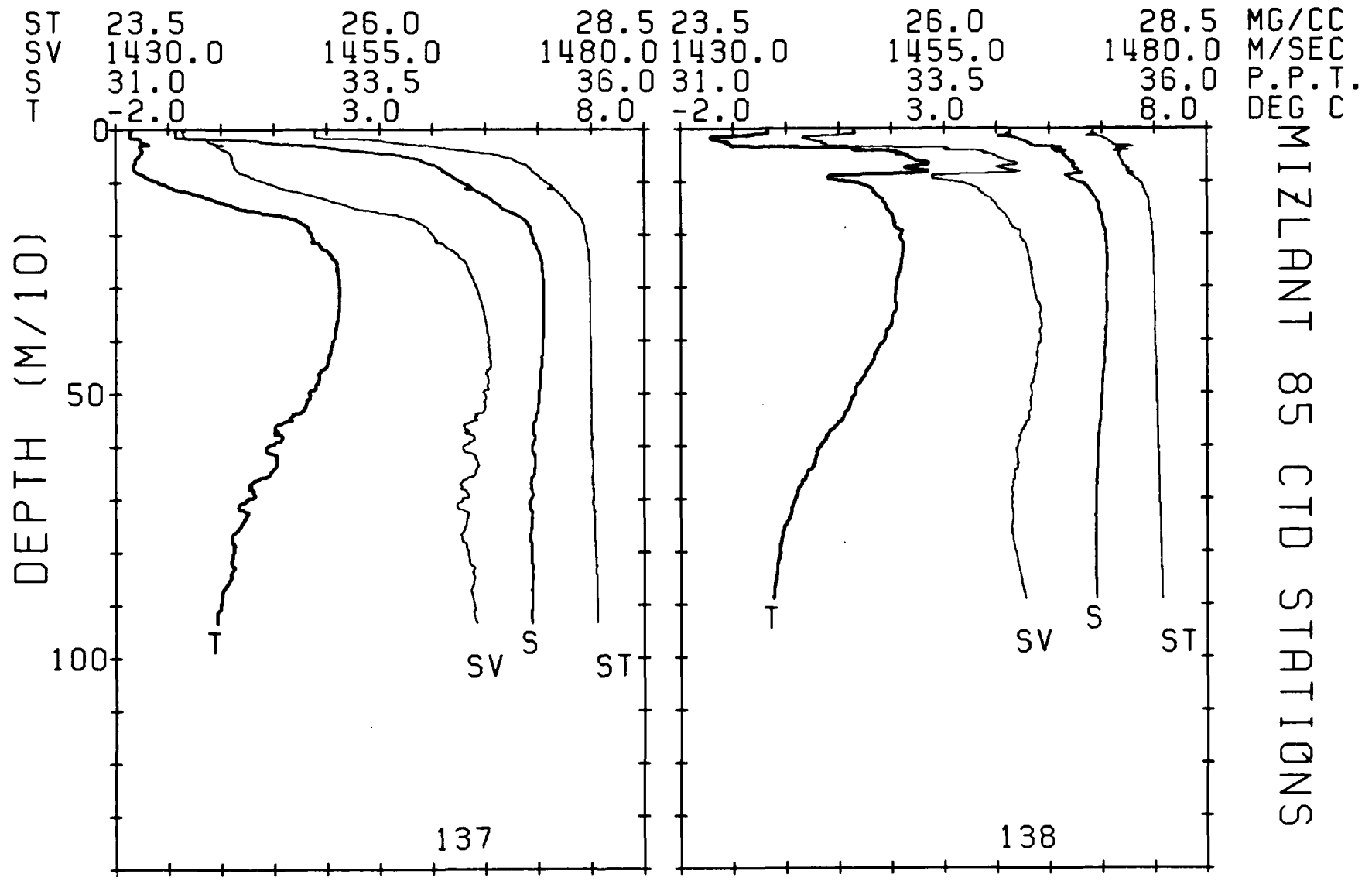
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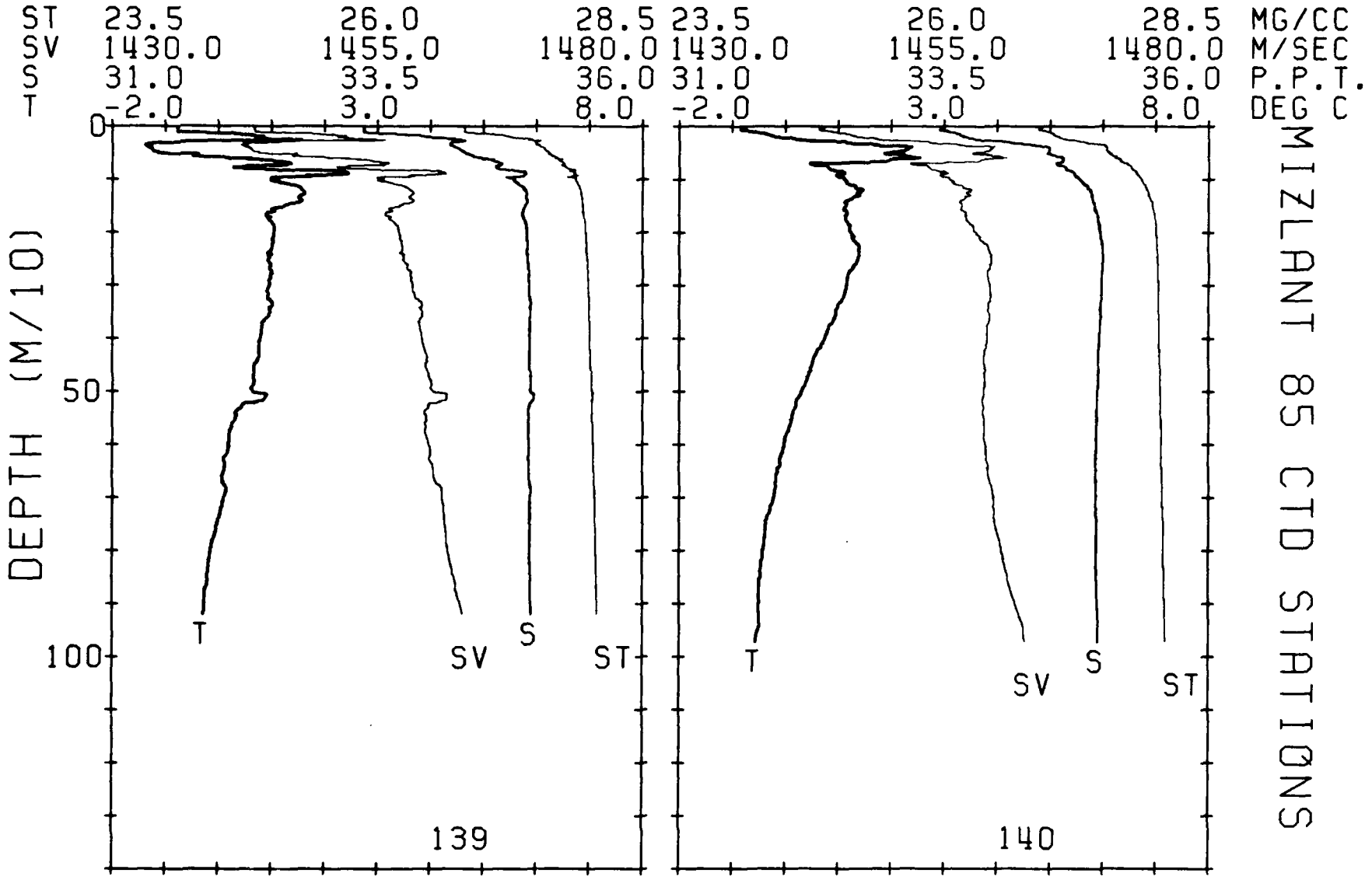
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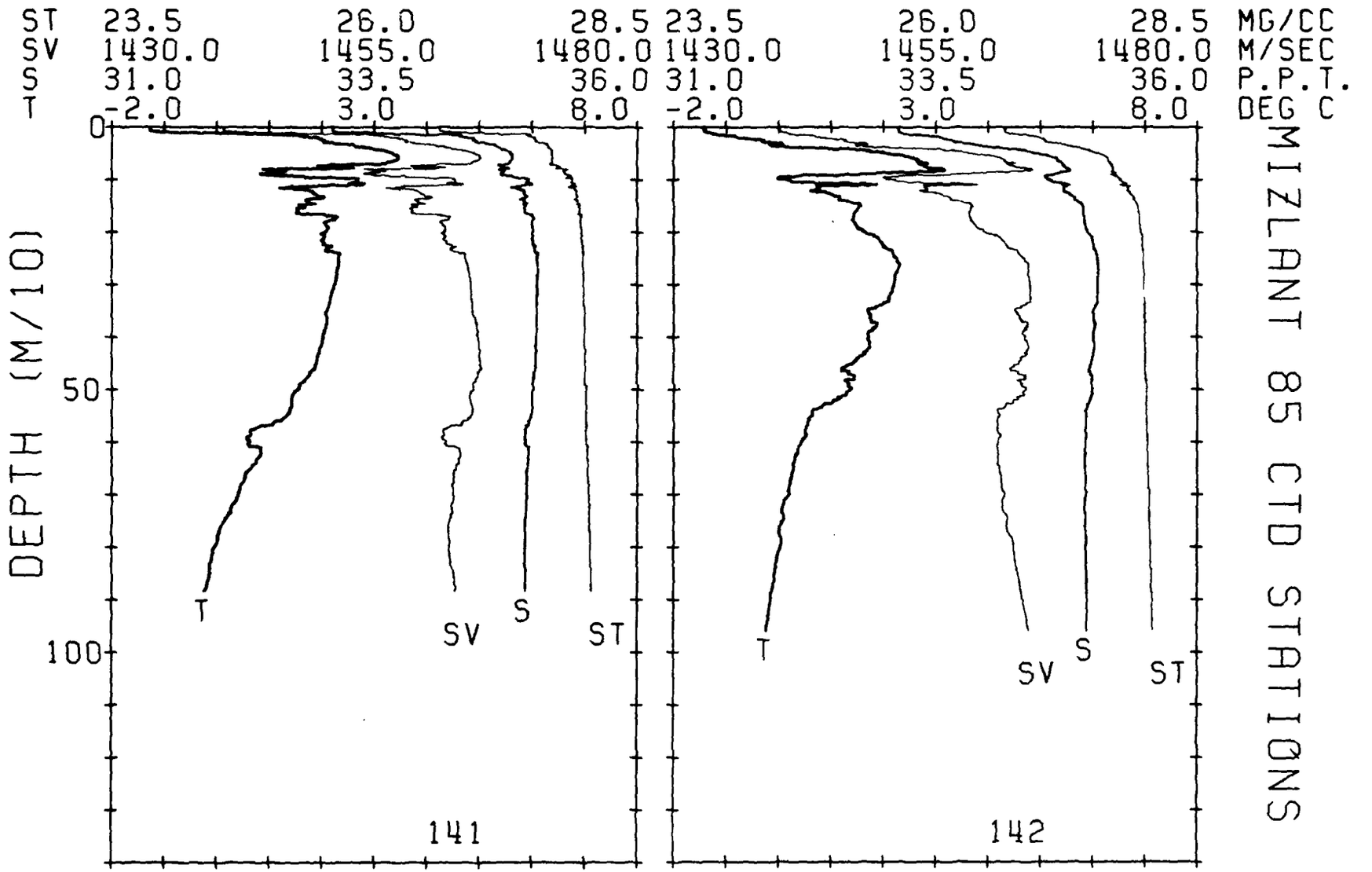
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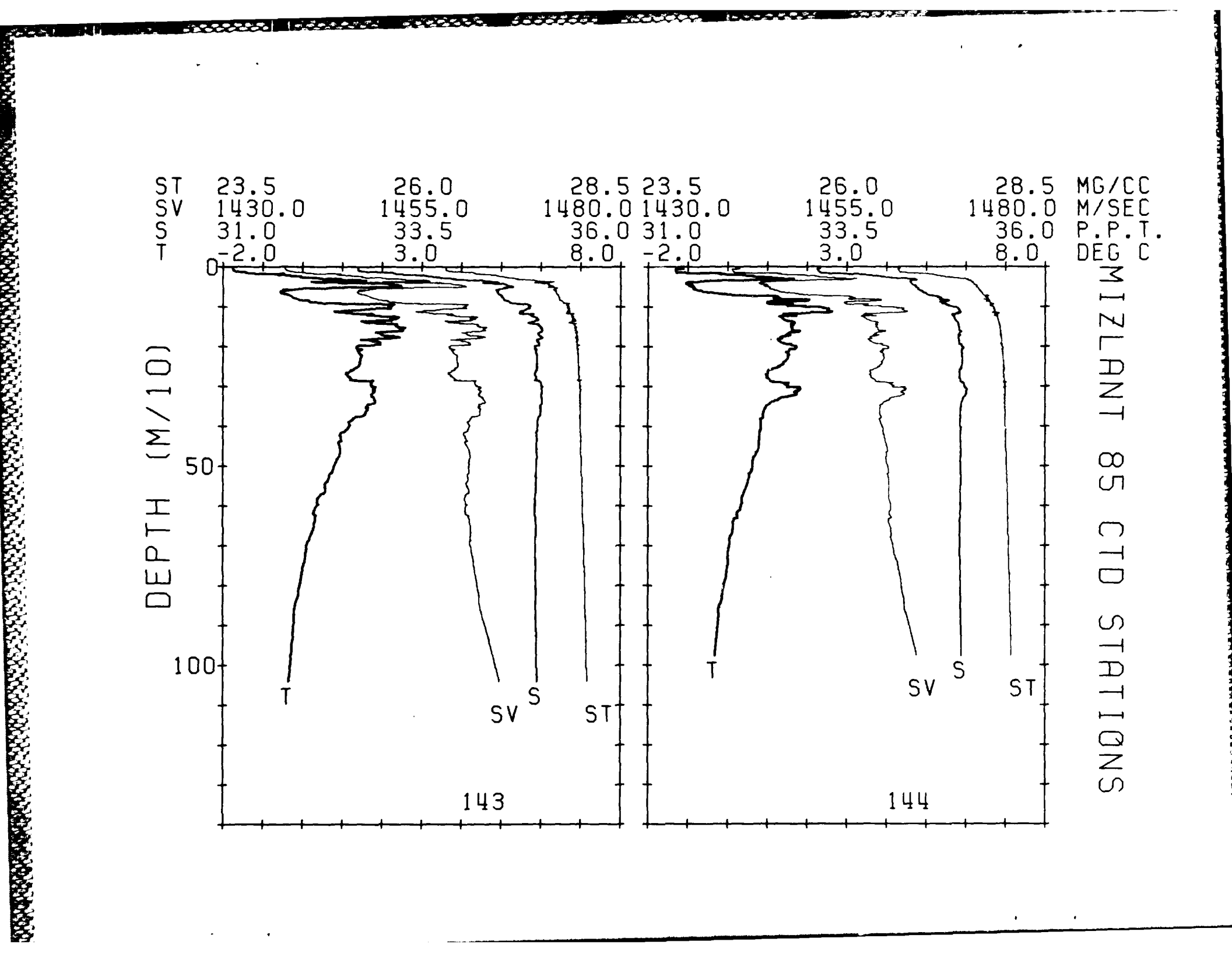
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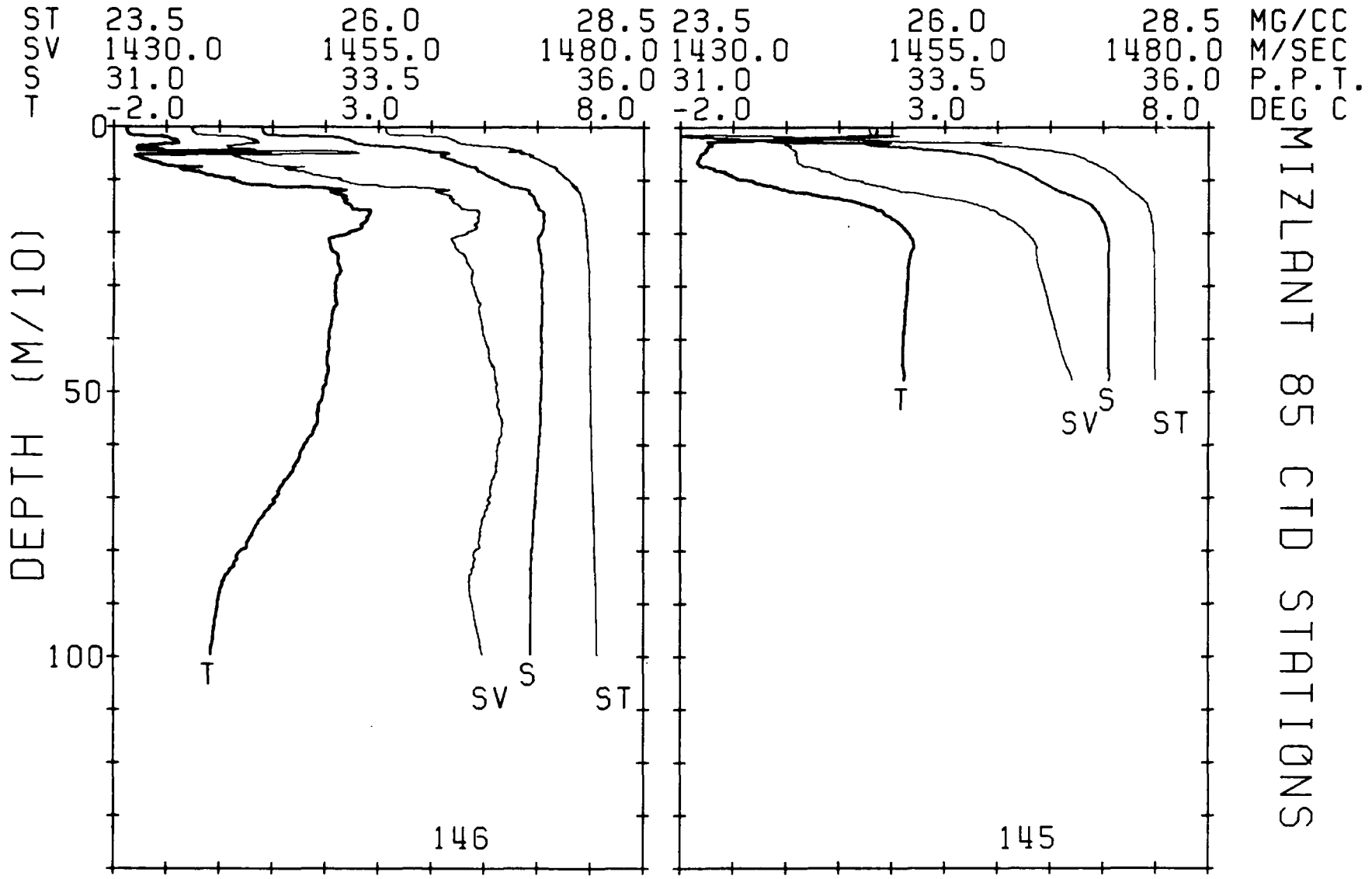
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MIZLANT 85 CTD STATIONS

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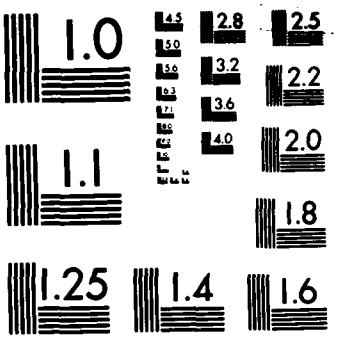

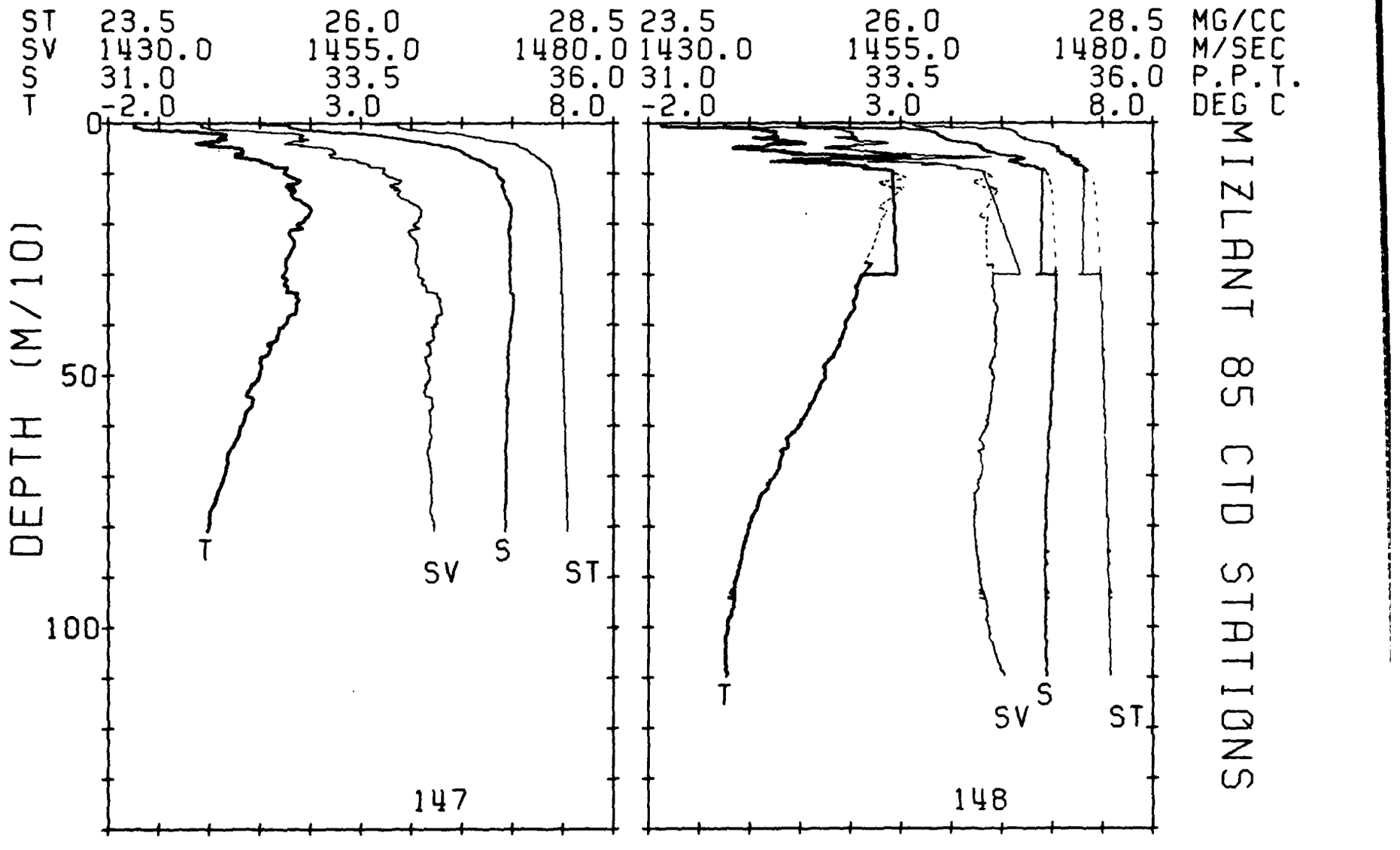
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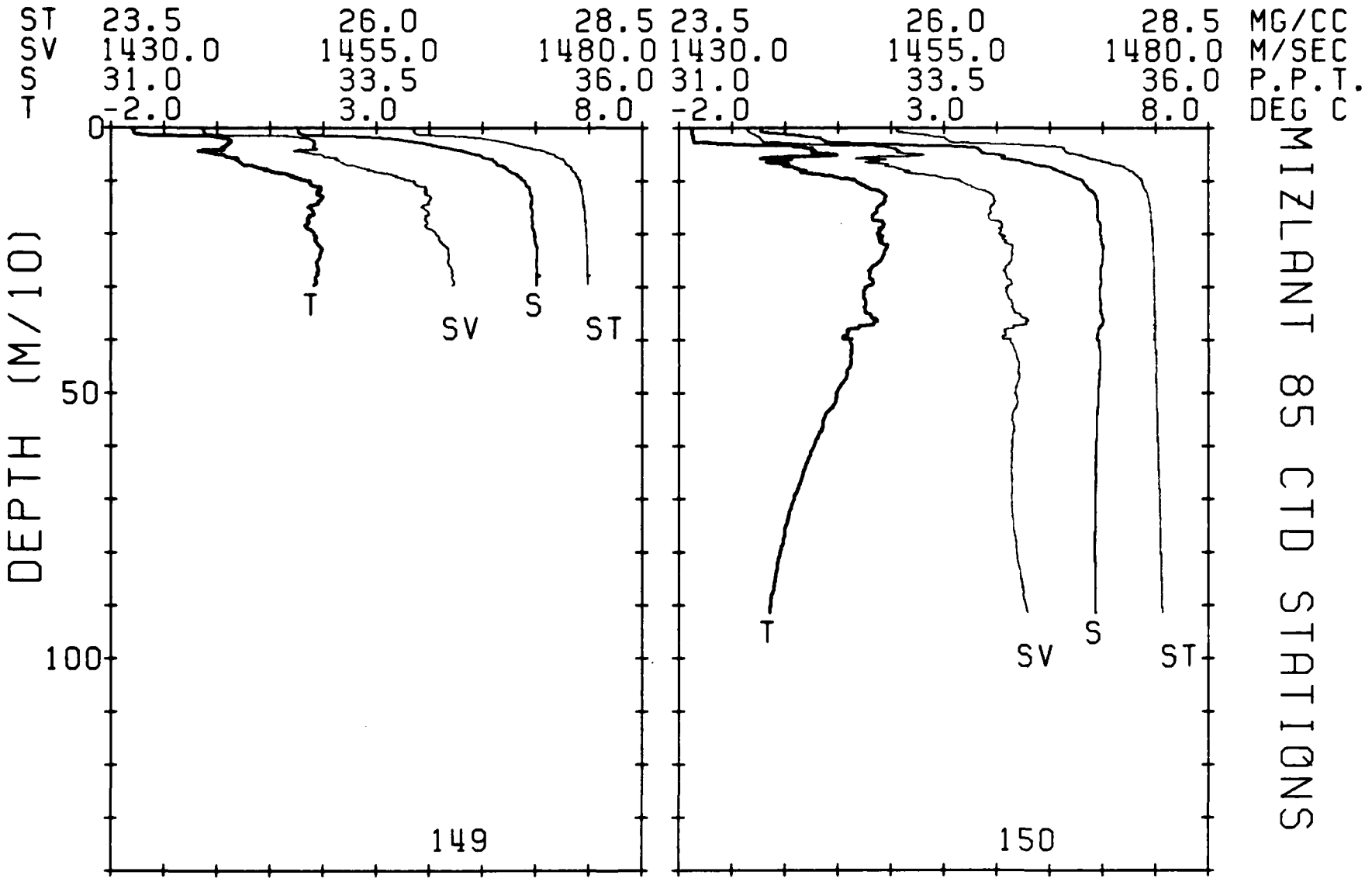
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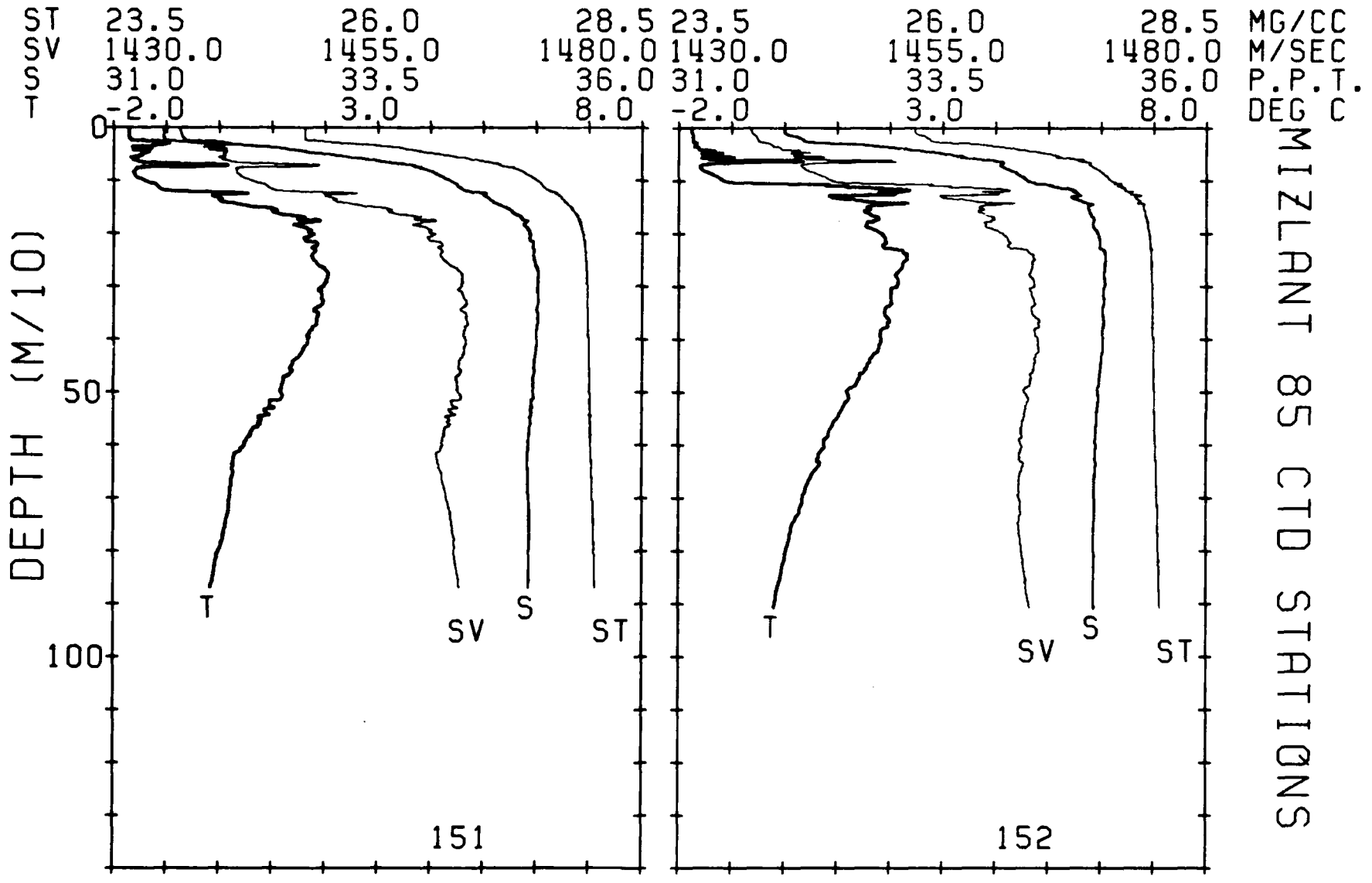
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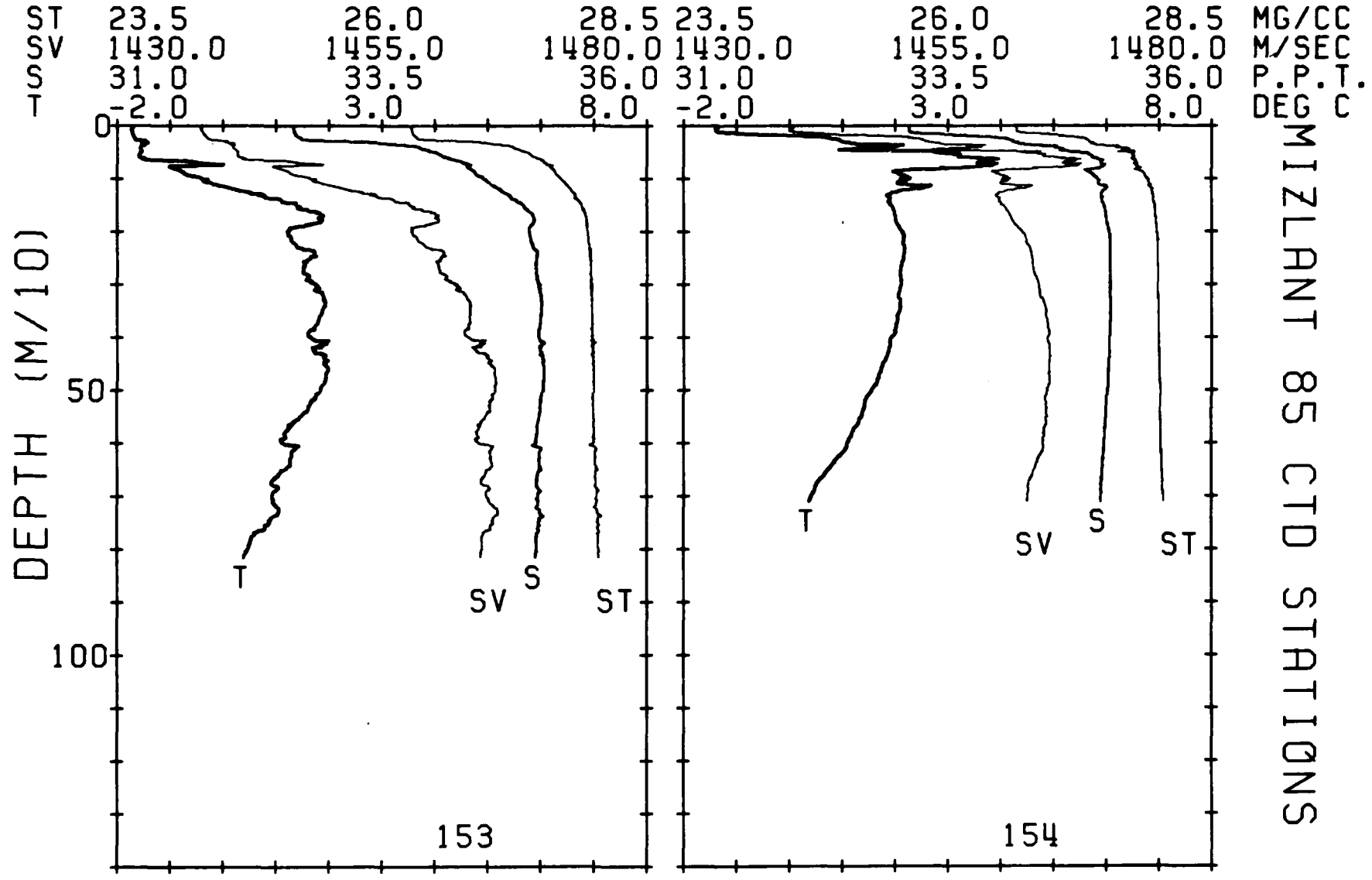
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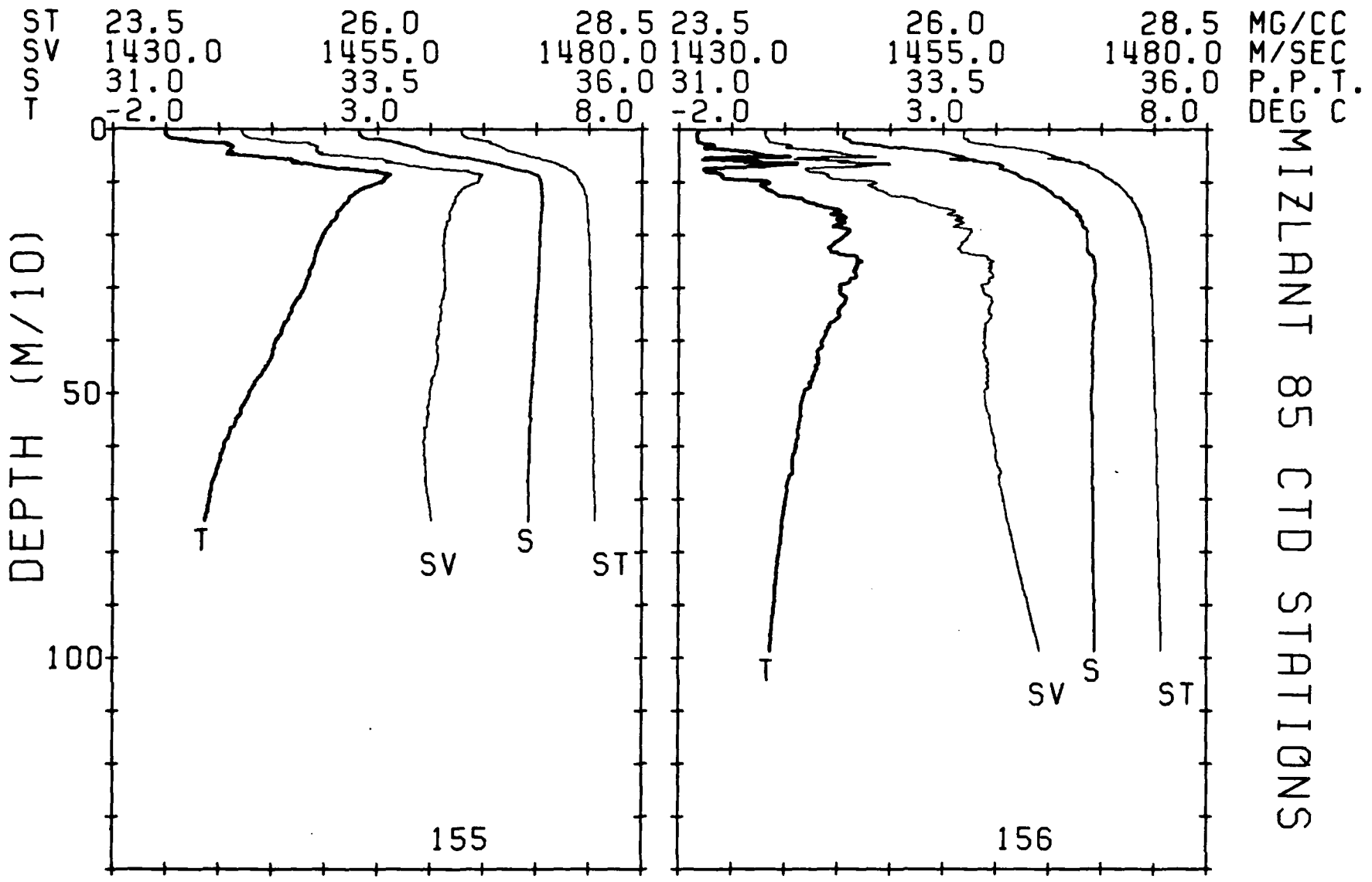
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